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ESMERALDO
DE SITU ORBIS

SECOND SERIES

No. LXXIX



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Book 5162

de Conso deum Gão e filhos filhos de Soc depois do delunio
cada hum abitoa sua parte da terra, e conso the posuiron nomes
Lungia, Asya, e Affrica e os Luguares por donde se decidom.

Cap. 3º

Amosheamus que diga como depois do universal delunio, e
total destrugemto da qual por deumio preuilegio ho tanto Soc e seus
filhos escaparon sonda na terra descuberta das aguas e ellas recolhi-
das em seu luguar por elle e sua geracao for posuirda todo ho hu-
manor e por esta causa se dia que seum seu primogenito ajuntou
a parte oriental, e Gão ha parte do mes dia, e filho abitoa na parte
setentrional e ay como elles seomunhe forão tres irmãos filhos do de
tanto Padre ay quizeram os antigos escriptores que a terra que soube-
m em tres partes deuiss ffe. e depois de passados muitos annos da
Reformação das ffeitas que os delunio se fuderom e ho horbe cheo
de geracao humana habestada de doutrina pello onero e outros anti-
quos Cosmographos que a mesma terra por muitos annos andaron e
doutros pfeitos que ipso meanno per uordadura informaçam habende-
om em tres partes anchaes ha deciduom, e na quarta parte que
1072a Asya abitoa enandou descobrir aheom do Beiano por elles ser ~~unconquyda~~ e
couso alguma nom felerom, as quaes tres Asya, Lungia e Affrica se
som chamadas cujos nomes de que antigo principio abeo gora len-
guamente sempre durarom, Asya dizem que ouue este nome de
humna Raynha ay chamada que esta parte setentrional, e o nome de
Affrica se afirma ser tornado de bafear filho de Abbraa o qual braen-
do grande saurculo nesta parte e uencendo os habitadores della aquelles
que deffini ha posuiron afpos forom chamados e agora Affricanos e
por esta causa se cre que toda esta Regim Affrica ha chamada, e a
Europa tomere este nome de humna Raynha filha del Rey hegenor de

ESMERALDO DE SITU ORBIS

BY

DUARTE PACHECO PEREIRA

Translated and Edited

by

GEORGE H. T. KIMBLE, M.A.

Lecturer in Geography in the University of Reading

1658

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P R E F A C E

The Great Age of Discovery has had many historians; and not without good reason, for it has provided an extraordinarily fertile field for investigation. But it is unfortunate that so much attention should have been focused upon the leading characters of the period, and so little upon the lesser, as it has caused many of the less spectacular achievements to suffer neglect. Even so, it is surprising that the work of a man like Duarte Pacheco, who, in his own day, was deemed—for a time at any rate—to be as eminent as Vasco da Gama, should have lain practically unnoticed for nearly four hundred years; not until 1892, the quater-centenary of Columbus's epochal voyage, was the *Esmeraldo de Situ Orbis* first published. With the development of the modern concept of historical geography in the present century, documents of this character have come to possess an altogether new significance, so that an English translation of this work—providing, as it does, the only detailed, contemporary eyewitness's description of the African coasts—is well overdue.

In preparing this translation I have been fortunate enough to enjoy the co-operation of Mr Aubrey Bell, whose skill, both linguistic and literary, has greatly lightened my task. Indeed it is doubtful whether it would have been fulfilled without him. To him, therefore, I tender my warmest gratitude. My cordial thanks are also due to Professor E. Prestage for much invaluable help in elucidating difficult passages; to my colleague Mr W. F. Morris, for undertaking to construct a map of West Africa

from internal data, and for supplying an explanatory note; to Sir William Foster, for many helpful suggestions and for reading the proofs; and finally to Mr E. Lynam, for seeing the book through the press and for unnumbered incidental kindnesses shown at a time when he was troubled with ill-health.

GEORGE H. T. KIMBLE

READING

December 1936

INTRODUCTION

IT is nowadays widely accepted that the Portuguese were the founders of nautical science. Before their time maritime enterprise had been conducted largely by private individuals or by small companies of adventurers; as few of these men recorded their undertakings, kept logs or drew charts, their experiences had little or no cumulative value and each generation was as ignorant as its predecessor. So long as their seafaring activities were confined to the Mediterranean and adjacent waters, navigation "by God and by guess," although attended by grave risks, served them well enough. But when, in the early years of the fifteenth century, men began to plan the maritime exploration of the unknown Torrid Zone and the Southern Hemisphere, it became clear that empiricism in nautical matters could no longer be relied upon. The rise of nautical science in Portugal was the logical outcome of the needs created by these expeditions.

The history of this development has been so thoroughly investigated in recent years by Dr Joaquim Bensaude¹ and others that anything more than a passing reference to the general nautical methods and equipment of the Portuguese pioneers would be out of place in this introduction, all the more so as the narrative that follows answers many of the questions we might be tempted to ask. For instance, Pacheco tells us how latitude is calculated with the help of the astrolabe, quadrant and *Regimento*²; how mariners find their way along strange coasts³; how tides are calculated⁴; the sizes and kinds of vessels commonly employed in African waters⁵. Even so, it is not possible to measure the nautical accomplishments of the Portuguese by the yardstick of the *Esmeraldo de Situ Orbis*: in fact so much of the work carried out by them has perished that there is no means

¹ *L'Astronomie nautique au Portugal à l'époque des grandes découvertes*, 1912. There is a very useful summary of Portuguese nautical practice c. 1500 in E. Prestage, *Portuguese Pioneers*, chap. 14.

² Book I, chap. 10.

³ Book II, chap. 10 *et passim*.

⁴ Book II, chaps. 1, 3.

⁵ Book IV, chap. 2.

of accurately determining the Portuguese contribution to nautical science. In the first place, nothing of the work of Master Jacome—the most famous Catalan cartographer of his day (whom Prince Henry secured for his School of Sagres)—is extant. Further, no fifteenth-century map of Portuguese provenance and comparatively few of the early sixteenth century have survived. The same dearth prevails as regards nautical documents; a mere handful of navigation manuals, instructions to pilots, logs and rutters has come down to us from this early period, and again none from the fifteenth century¹. That there must have been maps is apparent when we recall the allusions to them in Zurara: e.g. “they [i.e. the 51 caravels sent out before 1446 by Prince Henry] went 450 leagues beyond Cape Bojador and all that coast was found to run southwards with many points which our Prince caused to be added to the sailing chart²,” and the declaration of Alfonso V that until Henry’s time “no one knew anything of the land beyond Cape Bojador, nor was it marked on sailing charts and mappaemundi save as men pleased³.” That there were rutters and textbooks of navigation in the same period is less certain. Zurara does not mention them, nor do the other chroniclers of that century. Fontoura da Costa surmises, however, that Portuguese “roteiros” began to be compiled soon after the doubling of Cape Bojador in 1434⁴.

Whatever the explanation of their scarcity, there is no doubt that the discovery of India at the end of the century gave a tremendous impetus to the detailed description of the new sea route, for manuals on navigation and sailing directions began to appear in the first decade of the sixteenth century and were published thereafter at frequent intervals. At first these were the work of the Portuguese exclusively; later on, similar works by English and Dutch writers were produced. From them have sprung the excellent “Pilot” books of the present day.

¹ The so-called “roteiro” of Vasco da Gama’s first voyage is only a rather simple diary of the voyage and is very deficient in scientific observations.

² Chap. 78. *Discovery and Conquest of Guinea* (Hakluyt Society).

³ *Alguns Documentos do Archivo Nacional... Acerca das Navegações e Conquistas Portuguezas*, p. 8.

⁴ *A Marinharia dos descobrimentos*, vide C. R. Boxer, “Portuguese Roteiros, 1500–1700,” *Mariner’s Mirror*, vol. xx, April 1934, p. 172.

If we exclude some rather crude rutters of uncertain date by G. Pires and J. Rodrigues¹, then the earliest dated Portuguese "roteiro" is the *Esmeraldo de Situ Orbis*.

THE AUTHOR OF THE *ESMERALDO*

Comparatively little is known of the early life of Duarte Pacheco Pereira. The son of João Pacheco, a scion of a distinguished Portuguese family, he is usually regarded as having been born about the middle of the fifteenth century. This belief is based upon the fact that the capture of Arzila in 1471, at which the writer of the *Esmeraldo* says he was present²—presumably as a soldier—is the earliest recorded biographical detail.

Elsewhere in the same book Pacheco tells us that he was born in Lisbon³, that he was employed by King John II of Portugal in African waters and that, in company with others of the King's captains, he discovered "many places and rivers along the coast of Guinea⁴." From another chapter⁵ it would appear, furthermore, that Pacheco was associated with Diogo d'Azumbuja in the founding of the castle of S. Jorze da Mina. By 1498 his reputation as a navigator was so well established that King Manuel I despatched him, secretly it would seem⁶, to discover "the Western region⁷." This resulted in the discovery of "a very large landmass, with many large islands adjacent⁸." Two years later Pacheco went out again with Cabral, who had orders to touch at the Brazilian coast (which Pacheco had apparently sighted) before going on to India.

For the next chapter in his history we have a more detailed record to draw upon. In 1503 King Manuel sent Pacheco out to India with the Albuquerque. Shortly after his arrival there he led an expedition against the fleet of Calicut with such success that "the fame of the Portuguese arms was spread everywhere and the merchants were afraid to bring their spices to Cochin⁹."

¹ Vide C. R. Boxer, *op. cit.* p. 173.

² Book II, Prologue.

³ Book I, chap. 23; book IV, chap. 4.

⁴ Book I, Prologue.

⁵ Book II, chap. 5.

⁶ Vide E. Prestage, *Portuguese Pioneers*, p. 277.

⁷ Book I, chap. 2.

⁸ *Ibid.*

⁹ J. Osorio, *The History of the Portuguese during the Reign of Emmanuel* (trans. by J. Gibbs), vol. I, p. 167.

Even greater success came in 1504 after the Albuquerque had left India and Pacheco was in entire charge of the garrison, fleet, and factory. In March of that year he launched an attack against the Samuri; by his "assiduity and bravery...this formidable war was brought to a conclusion in five months, during which time the enemy is computed to have lost about 19,000 men together with a considerable number of their ships¹." In the following year he returned to Lisbon, where he was received with great honour. "His expedition in carrying on war, his magnanimity in the greatest dangers, his steadiness in enduring hardships and his success in battle were extolled to the skies. The King ordered a public thanksgiving on his account and made a pompous procession with the court from the cathedral to St Dominic's church. He made Pacheco walk by his side that all might see what respect he paid to bravery. After they came to the church, Diogo Ortiz, Bishop of Vizeu, pronounced an oration, wherein he copiously set forth the illustrious and admirable exploits of Pacheco and piously concluded by ascribing all to the glory of God. Nor was Emmanuel satisfied with doing him this great honour; he likewise wrote letters to almost all the Christian princes, wherein he extolled Pacheco's actions with due applause, that his fame and renown might spread through Christendom²."

From this time onwards information concerning Pacheco again becomes meagre. His strenuous life of the previous six or seven years and the award of a pension of 20 milreis may help to explain his apparent retirement (from public life) during the next few years. At all events we do not meet him again until 1509. The intervening time was not all spent idly however, for it was during this period of his life that the *Esmeraldo* was partly, if not entirely, written³. In 1509 Pacheco temporarily returned to a more active occupation, for in the January of that year we find him conducting an expedition against the French pirate Mondragon, whom he succeeded in capturing off Cape Finisterre. In addition to this brilliant excursion back into

¹ J. Osorio, *The History of the Portuguese during the Reign of Emmanuel* (trans. by J. Gibbs), vol. I, p. 167.

² J. Osorio, *op. cit.* p. 220.

³ *Vide infra*, pp. xvi et seq.

maritime affairs Pacheco appears to have been captain of a Portuguese fleet that guarded the Straits of Gibraltar *c.* 1511¹; how long he continued to hold this position it is difficult to tell. Suffice it to say that we do not hear of him playing any further active part in the affairs of the State until the end of the decade. In fact, between 1509 and 1519 there are only half a dozen documents extant that bear on Pacheco's life, and none of these is very revealing; they simply record matters relating to the renewal of his State pension and to his association with other distinguished men². In view of his almost unique geographical and nautical knowledge it is difficult not to believe that he was employed by King Manuel as an adviser on colonial policy, even if by now he was too old to undertake further expeditions. But these are merely hypotheses which, in the absence of any evidence, are of little worth.

Pacheco's last public charge, so far as our scanty knowledge goes, was the governorship of the castle of S. Jorze da Mina. This position he seems to have held from 1520 to 1522; in the latter year he was recalled and succeeded by Afonso d'Albuquerque, son of the Albuquerque of Indian fame. The circumstances of his recall are described by Osorio thus: "Pacheco being greatly envied there, he was accused by his enemies of having defrauded the King of a great quantity of gold and of having been guilty of many scandalous and villainous practices. The King therefore ordered him home in irons, where he lived in a very miserable condition, in close confinement for a considerable time, till the affair being more carefully enquired into, it appeared that the crimes laid to his charge were either without foundation or such as did not deserve such severe punishment. Then indeed he was released from prison and restored to his dignity, but did not meet with a reward suitable to his great merit, and spent the remainder of his days in obscure poverty³." His subsequent movements are all unknown. We only know that he was still

¹ *Vide* Sousa Viterbo, *Trabalhos nauticos dos Portugueses nos Seculos XVI e XVII*, vol. I, pp. 238 *et seq.*

² *Vide* R. E. de Azevedo Basto, *Esmeraldo de Situ Orbis*, edição commemorativa, 1892, pp. xx *et seq.*

³ J. Osorio, *op. cit.* pp. 220, 221.

alive on February 5th, 1526¹; and from a provision of King John of June 22nd, 1534, in which he awards an annual pension of 20 milreis to João Fernando Pacheco, Duarte Pacheco's son, we may not unreasonably assume that Duarte was no longer living by that date. More precise we are scarcely able to be.

THE DATE OF THE *ESMERALDO*

The *Esmeraldo* receives practically no mention in contemporary literature. It is therefore very fortunate that the evidence of the work itself should leave us in little doubt as to its approximate date. A rough *terminus a quo* is provided by the author's reference, in the Prologue, to the discoveries of Vasco da Gama of 1497-1499, while an equally rough *terminus ante quem* is forthcoming in the last chapter of book IV, where Pacheco still continues to refer to King Manuel (d. 1521) as "our Sovereign Lord." Now it is obvious that Pacheco was not twenty years writing the *Esmeraldo*, even if we suppose for the moment that he did actually complete his task and write five books instead of three and a few chapters of a fourth². When, therefore, was he actively engaged upon it? While the evidence does not permit of a final answer to this question, it does allow us to be slightly more specific. In the first place, as Pacheco was abroad most of the time from 1498 to 1505 it is very unlikely that he commenced to write until his return from India. An examination of the two passages of the text containing definite dating material strengthens this view. The first of these occurs in chapter 14 of book I and runs as follows: "It is now about ninety years since Cepta was captured by force of arms from the Moors by King John I of glorious memory...the other three [towns Alcacer, Tangier and Arzila] were taken by King Afonso V, your uncle, 47 years ago." Ceuta was taken in July 1415 under the leadership of Prince Henry the Navigator; adding 90 years we arrive at 1505 as the approximate time of writing. This date is confirmed by the statement about Alcacer, which was captured in 1458. Tangier and Arzila, on the other hand, were not taken until

¹ Vide Azevedo Basto, *op. cit.* pp. xxiii, xxiv.

² Vide *infra*, pp. xxix, xxx.

1471; on this reckoning the *Esmeraldo* must be allocated to the end of the following decade, namely 1518. As Pacheco himself tells us in the Prologue to book II that Alcacer was taken in 1458 and Arzila in 1471 it is not possible to say with assurance which year the writer had in mind when he wrote "47 years ago."

In a later passage Pacheco tells us that "in the year of Our Lord 1506 your Highness ordered a castle to be built on the mainland in this town of Moguador hard by the sea. . . . This was constructed and commanded by Dieguo d'Azambuja. . .¹." As this event is referred to in the past tense, the passage was clearly written after 1506. From this passage onwards all the dating material points to a date later than 1505, but not later than 1508. Dr Jaime Cortesão, who has studied the question very fully, is of the opinion that the first fifteen chapters, or somewhat less than a quarter of the work, were written during the last months of 1505, the remainder between 1507 and 1508².

THE MEANING OF THE TITLE

The title of Pacheco's work is puzzling. *De Situ Orbis*, of course, needs no explanation; it was commonly incorporated into the headings of treatises of cosmography from the time of Pomponius Mela onwards. *Esmeraldo*, however, is an unusual word. Several attempts have been made to explain it, but none of them is completely satisfactory. Epiphanio da Silva Dias³ has suggested that Pacheco may have followed the example set by an Arab writer of the first half of the fourteenth century, one Ibn-al-Wardi, who entitled a work on geography and natural history *A Precious Stone of Marvels and a Pearl of Memorable Things*. The objections to this view are twofold; in the first place there appears to be no reason for supposing that Pacheco was acquainted with this book, and, secondly, it is difficult to see why he should prefer to use the Italian termination of the word for "emerald" to the Portuguese (and Spanish) form—"esmeralda."

¹ Book I, chap. 19.

² "Influência dos Descobrimentos dos Portugueses na história da civilização," in *História de Portugal*, vol. IV, p. 228.

³ *Esmeraldo de Situ Orbis*, edição crítica anotada, 1905, p. 4.

Luciano Pereira da Silva has an even more ingenious solution to offer¹. He holds that *Esmeraldo* is an anagram of the names Emmanuel (Manuel) and Eduardus (Duarte). This explanation appears to be even less probable than the first, for the word *Esmeraldo* does not contain all the letters of the two Christian names in question, indeed it does not contain the requisite letters to form either name; furthermore, it is unlikely that Pacheco, who, throughout his work, refers with the utmost respect to his sovereign, should have taken the liberty of coupling his name with that of King Manuel.

A third and very reasonable explanation has been suggested to me by Dr George Sheppard. In his opinion the word *Esmeraldo* is akin philologically to the Spanish word "esmerado" (= guide). Certainly the *Esmeraldo de Situ Orbis* is first and foremost a guide to navigation.

THE CONTENT OF THE *ESMERALDO*

Though the title is obscure, there is nothing obscure about the scope and aim of the book. In the author's own introductory words, his intention is to write "a book of cosmography and navigation." Because of the orientation of Portuguese interests he will limit himself to two of the four continents, Africa and Asia; all that concerns navigation he will describe at great length: "thus all the routes will be stated, namely the position of places and promontories in relation to one another, in order that this work may have an ordered basis and that the coast may be navigated in greater safety: similarly the landmarks and shallows, for these are essential; and the soundings, both their depths and the kind of bottom, whether it be mud or sand or rock or gravel or snags or shingle, and the distance of the soundings from land: similarly the tides, whether they flow NE and SW as in our Spain, or N and S or E and W or NW and SE, which it is essential to know in order to be able to enter and leave the bars and mouths of rivers: further, the altitudes of the poles, by which one may know the latitude of a place and

¹ *Historia da Colonização Portuguesa do Brasil*, vol. 1, p. 249.

its distance from the Equator." He says he will also describe the inhabitants of the land of Ethiopia and their way of life.

Unfortunately the project does not seem to have been entirely realised. Three of the five books contemplated are extant and a part of the fourth, carrying the description down to the Rio do Infante in South Africa. Now in view of what we know of Pacheco's life and of the fact that the body of the work seems to have been written soon after his return from India, it is difficult to see why the *Esmeraldo* should not have been completed, especially as it was in the fourth and fifth books that the author promised to deal with the hitherto undescribed south-eastern and eastern coastline of Africa¹.

As far as the work goes it certainly fulfils the author's promises. After twelve introductory chapters on general geographical topics such as the territorial division of the earth, the course of the Nile, tidal phenomena and the calculation of latitudes, Pacheco commences his systematic description of the coastline. Throughout this part of the work he follows a rigorously disciplined order of treatment, embellished here and there by historical anecdotes and personal opinions that at once reveal the calibre of the writer and the state of contemporary knowledge. Compared with contemporary works like Enciso's *Suma de Geographia*, the *Esmeraldo* offers a more detailed and circumstantial account of the coast. Whereas much of Enciso's information could have been obtained, and undoubtedly was obtained, from charts, Pacheco's has all the traits of personal or eyewitness narrative; but this is not surprising in view of the part Pacheco played in the discovery of the Guinea coast.

PACHECO'S DEBT TO TRADITION

In sharp contrast, however, to the up-to-date character of Pacheco's geographical knowledge of W. Africa is the mediæval, even classical, bias of his knowledge of the rest of the world. For instance, in lauding King Manuel he says "your glorious fame . . . sounds through the whole of Europe and Africa, Arabia, Persia, through the lands of the Elamites, Babylonians, Chaldeans,

¹ *Vide* pp. xxviii *et seq.* for a possible explanation of this anomaly.

Medes, Assyrians, Parthians, Phœnicians . . . it even penetrates to the very distant and ferocious peoples of Cithas and the most wealthy kingdoms of India¹”—a catalogue that would have been more appropriate to Herodotus's day than to Pacheco's. His description of the Ocean is also strangely reminiscent of classical writings², while his fivefold division of Africa into the provinces of Libya, Mauretania, Tingitania, Atlantica and Ethiopia is openly borrowed from the Ancients, upon whom he does not attempt to improve³. He further shows his classical bias in employing the R. Nile and the R. Tanais (i.e. Don) as the boundary lines between Africa and Asia and between Europe and Asia respectively. Here and elsewhere the testimony of the Scriptures is added to that of such men as Strabo, Pliny, Mela and Ptolemy, both to give weight to the author's arguments and to provide him with his "factual" basis. When he finds them in disagreement he is not above pursuing a highly meretricious middle path. His discussion of the problem of the Nile's origin provides us with an illustration of his casuistry. It was a controversial subject in classical times, and Pacheco cannot have been ignorant of the obscurity surrounding it and the absence of data; notwithstanding he does not hesitate to proffer a solution. He rejects, rather surprisingly (seeing that he defers to them elsewhere), the views of Mela, Pliny and the Christian Fathers, and purports to base his statements "according to the description of Ptolemy⁴"; but whereas Ptolemy places the sources of the Nile in $12\frac{1}{2}^{\circ}$ S., Pacheco places them in 35° S., that is, in the Cape of Good Hope, and affirms that the "rocky mountains [sic] of the Cape" must be the Ptolemaic "Montes Lunae⁵." This seems to suggest one of two things: either that Pacheco knew very little about Ptolemy's *Geographia*, for it is expressly stated there that some of the Moon Mountains were so lofty as to be covered with snow and that the entire range stretched through 11 degrees of longitude, that is, some 700 miles⁶, or that he quoted Ptolemy and the other classical authorities, not because he accepted their authority, but in order that he might keep himself in countenance

¹ Prologue, book 1.² Book 1, chap. 5.³ *Ibid.*⁴ Book 1, chap. 4.⁵ *Ibid.*⁶ *Geographia*, book IV, chap. 8, para. iii.

with the scholars of his day. His allusion to Pliny's description of the middle Nile inclines me to the latter view. After speaking of the island of Meroe which, he avers, is formed by the temporary bifurcation of the waters of the Nile, and which, according to Pliny, is very fertile and well populated, he continues: "Pliny says further that the Nile flows for twenty days' journey underground and then reappears as a new river, and that the inhabitants of that region believe that the Nile rises there¹." Now the context of this statement in the *Natural History*, from which Pacheco is quoting, is the paragraph dealing with the *Western Nile*²; in Pliny's opinion this formed part of the drainage system of the Egyptian Nile—an opinion that was completely at variance with Ptolemy's, namely, that the two systems were separate.

How little attention Pacheco paid to the *substance* of classical geography can be seen in his discussion of the cause of the Nile floods. Here he rejects all the classical theories—including Strabo's, which was substantially correct and well-grounded—and sponsors the view that they are the result of the winter rains in the Southern Hemisphere. What sort of gradient the Nile would need to have in order to traverse 8500 miles—the minimal distance between 35° S. and the Mediterranean Sea—in "a few days³" is left to our imagination. Leo Africanus, a contemporary of Pacheco, could have told him that the flood-waters take forty days and more to come down from the Abyssinian highlands⁴.

A somewhat different bias—this time towards biblical and ecclesiastical authority—but the same casuistry is revealed in his treatment of "The Size and Greatness of the Earth and Sea and which of them is the larger⁵." In a word, Pacheco's thesis is this: the earth is not surrounded by the sea, as was maintained by many of the philosophers, but rather "the earth in its greatness surrounds and contains all the waters in its concavity and centre." After adducing arguments from Vincent of Beauvais's

¹ Book I, chap. 4.

² Book v, chap. 5.

³ Book I, chap. 4.

⁴ *History and Description of Africa*, vol. III, p. 936 (Hakluyt Society).

⁵ Book I, chap. 2.

commentary on the Psalter, he proceeds to argue that the recent discoveries of the Portuguese in the western Atlantic—which he regards himself as having initiated¹—provide fresh evidence of his contention². The immediate interest of the passage for us lies in the fact that Pacheco held this “large continent” to be continuous from north of the Arctic Circle to south of the Tropic of Capricorn. How did he arrive at this conclusion? There are his own personal observations and the findings of such other Portuguese explorers as Cabral, Coelho and the Corte Real brothers. Cabral can be quickly dismissed, as his Brazilian experience, whether fortuitous or planned, was only of some four or five days’ duration. Gonçalo Coelho and Fernão de Noronha, accompanied, so it would seem, by Vespucci, followed up this landfall in 1501 and 1502 and succeeded in tracing the Brazilian coastline from about the latitude of Cape San Roque down to, if not beyond, the limit given by Pacheco. The Corte Real expeditions of 1500 and 1502 were prosecuted in northern waters; although the existing records of their work are meagre in the extreme, it appears likely that the north-east coast of North America was examined from about the latitude of Hudson Strait down to 50° N. This leaves some 50 degrees of coastline still unaccounted for. Did Pacheco explore this portion? We hardly think so. In the first place, had he done so he could not have failed to notice the vast embayment of the Caribbean Sea and the Gulf of Mexico with their possibility of a break in the continuity of the mainland³, and he could not have committed himself to the gross misstatement that, if “from any other point of Europe, Africa or Asia [sic], we sail across the Ocean...through 36 degrees of longitude [= 648 leagues on his reckoning]...we find

¹ The validity of Pacheco’s claim to have “discovered and sailed along a large continent [Brazil?]” I do not propose to discuss, as Mr W. B. Greenlee promises to give us a full investigation of the early American explorations of the Portuguese in his edition of the Cabral documents shortly to be published by the Hakluyt Society.

² Book I, chap. 2.

³ The continuity of this part of the American coastline was only established after Pineda’s voyage in 1519, but judging from the Reinell map of c. 1522 (Bibliothèque Nationale, Paris), this fact was not immediately accepted in Portugal. The Diogo Ribeiro planisphere of 1527 is the first Portuguese map to suggest the continuity of the Central American coastline.

this land¹." To find land in middle latitudes he would need to go at least 800 leagues. In the second place he would not have come to the conclusion that "this distant land is densely populated²." In the third place, while Pacheco gives the latitude of several places in Brazil, stretching from 3° S. to 28½° S., he gives none for the central and northern parts of the new continent³.

Where, then, did Pacheco derive his information? The correspondence of Pietro Pasqualigo, the Venetian, provides us with the clue. In a letter to the Seignury of Venice, written from Lisbon in 1501, he says, speaking of the return of the first caravel of Gaspar Corte Real's expedition: "the people of the caravel believe that the above land [Labrador?] is the mainland and that it joins the other land [Newfoundland? Greenland?] that in the previous year was discovered to the north by another caravel of His Majesty. But they were not able to reach it because the sea was frozen over with vast quantities of snow like mountains on the land. They also think that it is joined to the Andilie [i.e. Antilles] which were discovered by the Sovereigns of Spain, and with the land of Papagia [i.e. Brazil] lately discovered by the ship of this King [i.e. Manuel] when on its way to Calicut. This belief is caused, in the first place, because having coasted along the said land for a distance of 600 miles and more, they did not come to any termination; also because they report the discovery of many very large rivers which fall into the sea . . .⁴." In a letter (of almost the same date) to his brothers, Pasqualigo writes: "they say [i.e. the crew of the caravel] that this land [i.e. Labrador?] is very populous. . . . They have brought here seven of the natives, men, women, children, and 50 others will come in the other caravel which is expected from hour to hour⁵."

From these letters it is clear that the continuity of the new continent was already postulated by the time of Pacheco's return from the Cabral expedition and that Pacheco was not alone in regarding this distant land as being thickly populated. In the

¹ Book I, chap. 2.

² *Ibid.*

³ Book I, chap. 7.

⁴ C. R. Markham, *Journal of Columbus*, p. 232 (Hakluyt Society).

⁵ *Ibid.*

absence of other evidence it would seem clear, furthermore, that these opinions of the Corte Real crew were the main ground of his confidence. What motive can our author have had in making so bold and baseless an assertion concerning these newly found lands? He himself tells us. He is out to demonstrate that "the Ocean is only a very large lake set in the concavity of the earth"¹ and that "the water only occupies a seventh part of the earth, as is shown in the fourth book of the prophet Esdras and the sixth chapter²." For this to be even approximately true the new continent must "go round the whole globe³"; as "its end has not been seen or known⁴" in Pacheco's time, this was a quite plausible conjecture. As if to strengthen his own convictions he advances the ancient theory of the Antipodes, but both wrongly attributes and applies it⁵.

PACHECO'S NAUTICAL RULINGS

In his treatment of the problems pertaining to navigation, Pacheco emancipates himself from the shackles of classical and ecclesiastical scholarship. Experience, not tradition, is his guide; witness such commonly repeated aphorisms as "Experience has disabused us of doubts and errors⁶." His discussion of the calculation of latitude—one of the earliest Portuguese essays on the subject—is entirely practical and is easily the clearest and most concise explanation that had been given up to his time. After a general preamble he proceeds to formulate four rules for the finding of latitude:

1. When the sun is between the observer and the equator, whether to the north or south of the equator,

Latitude = $90^\circ - (\text{Altitude of sun at noon} - \text{its Declination})$.

2. When the observer is between the sun and the equator, and the altitude and the declination together equal more than 90° ,

Latitude (N. or S.) = $\text{Altitude} + \text{Declination} - 90^\circ$.

¹ Book I, chap. 2.

³ *Ibid.*

⁵ *Ibid.*

² *Ibid.*

⁴ *Ibid.*

⁶ Book II, chap. II.

3. When the observer is between the sun and the equator, and the altitude and the declination together equal less than 90° ,

$$\text{Latitude (N. or S.)} = 90^\circ - (\text{Declination} + \text{Altitude}).$$

A moment's reflection will suffice to show that Pacheco was in error here, for when the observer is between the sun and the equator the sun's noon altitude and the declination must always be more than 90° . This formula, however, holds good for the case which he goes on to describe.

4. When the equator is between the sun and the observer, as above.

Compared with the methods described in the Munich *Regimento*, where seven cases are postulated, the directions in the *Esmeraldo* are remarkably succinct and comprehensive. In point of accuracy there is little to choose between the lists of latitudes given in the two works; if anything, Pacheco's is the more precise. Naturally the degree of accuracy is greatest in those parts of Europe and Africa where measurements had been taken for a comparatively long time; but even in southern latitudes Pacheco's figures are by no means wide of the mark. Thus he places the Cape of Good Hope in $34^\circ 30' \text{ S.}^1$, Sofala 20° S.^2 and Cape San Roque $3^\circ 30' \text{ S.}^3$ The enumeration of places with their latitudes south of the equator is noteworthy when we recall that King Manuel issued a decree in 1504 ordering the suppression of all information, including latitudes, bearing on the navigation of the African coast beyond Rio do Padram, i.e. 7° S. If, as we surmise⁴, the *Esmeraldo* was banned by the national inquisitors, this may well have been one of the contributory reasons.

The problem of longitude was less tractable and Pacheco avoids it—in spite of an assurance to the contrary in an early chapter⁵. He contents himself with the rather naïve statement that “degrees of longitude are counted from orient to occident, which the mariners call east and west, and this is difficult to ascertain because they have no firm and fixed point as are the

¹ Actually $34^\circ 22' \text{ S.}$

³ 2° out.

⁵ Book I, chap. 6.

² Actually $20^\circ 10' \text{ S.}$

⁴ *Vide infra*, p. xxix.

poles for the latitudes, and of this I will say no more¹." It was not until the following decade that the subject was first dealt with in the textbooks of navigation, and then only in a tentative fashion. Ruy Faleiro sought to establish a connection between the passage of the moon's meridian and longitude; Francisco Faleiro argued that there was a connection between magnetic deviation and longitude. João de Castro and Pedro Nunes were non-committal. And so the search continued until finality was attained, some two centuries later, as a result of the invention of the chronometer.

At the end of his general introduction Pacheco devotes his attention to the method of computing the ebb and flow of the sea in the Iberian peninsula and in "other regions where there are tides²." The relation between the moon's course and the tides he takes for granted, but he grossly underestimates the complexity of the subject when he says that a knowledge of the lunar cycle will enable a mariner to judge how the tide stands no matter where he is. He did not know, what is now common knowledge, that the constituents of a tidal regime vary from place to place, that there are semi-diurnal, diurnal and longer period forces which operate in different ratios in different places, and he only seldom seemed to notice the varying effect of coastal configuration on the rhythm and occurrence of tides. His rather wordy account may be paraphrased as follows:

1. There is an interval between one conjunction and the next of 29 days 12 hours and 33 minutes, the reckoning of the "philosophers" differing from that of the mariners by 3 minutes.
2. As the "tidal day" is of the same length as the lunar day, there is a daily retardation of the tide of some 45 to 50 minutes.
3. For this reason the state of the tide bears a close and calculable relationship with the moon's position in the heavens. On the Atlantic coast of Portugal and Spain, for instance, it is always high-water when the moon is in the north-east and south-west and low-water when the moon is in the south-east and north-west.

¹ Book I, chap. 8.

² Book I, chaps. 11, 12.

4. By using the relationship between the lunar cycle and solar time, it is possible to know exactly how the tide stands "wherever we are, either inland far from sea or coming from the deep sea in search of land¹." Thus at the beginning of the new moon (i.e. at conjunction) the moon and the sun are in the north-east and so high-tide occurs at 3 a.m. 24 hours and 45 minutes later the moon is again in the north-east, but the sun will be a "quarter point" further east, i.e. north-east by east², and so high-tide will occur at 3.45 a.m. On the following day the moon will be in the north-east at 4.30 a.m., i.e. when the sun is east-north-east. In other words high-tide comes a "quarter point" later every day. Accordingly, Pacheco says, "he who wishes to calculate the tide must therefore see in what point of the compass the sun is and then count the number of days which have passed since the conjunction, counting a quarter point of the compass for each 24 hours up to 15 days or less, and according to the position of the moon will be the tide. . . .³" Up to this point his directions are explicit enough, but when he comes to the question of distributing the 45 minutes' daily time-lag round the points of the compass, he seems unable to grasp the implications of his own argument. Thus, having stated that, when the sun and moon are in conjunction, low-water occurs off the coast of Spain at 9.0 a.m. (when, according to his reckoning, the sun and moon are in the south-east), he goes on to tell us that high-tide will occur when the sun is in the south-west, i.e. at 3.0 p.m., and the next low-tide when the sun is in the north-west, i.e. at 9.0 p.m., whereas by hypothesis, high-tide will occur at 3.11 $\frac{1}{4}$ p.m. and low-tide at 9.22 $\frac{1}{2}$ p.m. Apparently he did not realise that anything was wrong until he had worked round the compass points to the east, by which time, presumably, he could see that his method of reckoning was going to give 9.0 a.m. for the next low-tide, instead of 9.45, for at that juncture he interpolates a sentence to the effect that, as the moon is 45 minutes behind the sun, it will no longer make the tide at the same time

¹ Book I, chap. 11.

² The sun, theoretically, goes round the eight points of the compass every 24 hours: therefore it passes from one "quarter point" to the next every 45 minutes.

³ Book I, chap. 12.

as on the previous day. It is not until he comes to deal with the state of the tide when the sun is south-east by east that he assumes the 45 minutes' time-lag to be in operation¹.

However, apart from a few isolated lapses of this sort, Pacheco's treatment of nautical matters is highly meritorious. Altogether the *Esmeraldo* deserves a much more prominent place in the annals of nautical history than it has so far been awarded.

THE *ESMERALDO* AND THE PORTUGUESE CONSPIRACY OF SILENCE

It has been shown by Dr Jaime Cortesão² and others that, in pursuance of their ambition to hold a monopoly of the trade of Guinea and the adjacent coasts of Africa, successive kings of Portugal decided on the suppression of all information calculated to excite the interest and jealousy of other Powers. Further, vessels of other nations were prohibited from sailing into West African waters. Pacheco himself tells us of an expedition made by some Flemings in 1475 to Mina in defiance of this veto, and adds that their folly was suitably rewarded, "for God gave them a bad end³."

John II (reigned 1481-1495) was the chief instigator in all this, using his energies to prevent leakage of information either from printed or manuscript sources, just at a time when foreigners were seeking by every means to acquire it. This, Cortesão points out, accounts for the almost complete silence of Ruy de Pina—the official chronicler of John II—on matters of discovery. In fact after 1448, the last year embraced by Zurara's Chronicle, we are at pains to discover the sequence of events in exploration. In the reign of Manuel I, especially after the return of Cabral from India, the vigilance of the Portuguese government was intensified; it was, above all, anxious to prevent the export of maps, nautical instructions and pilots' observations. "It is impossible to get a chart of this voyage," wrote an Italian agent, concerning Cabral's expedition, "because the King has

¹ Book I, chap. 12, last paragraph.

² *Vide Lusitania*, Jan. 1924: "The National Secret of the Portuguese Discoveries in the Fifteenth Century."

³ Book II, chap. 3.

decreed the death penalty for anyone sending one abroad¹." It is also said that navigating charts were sometimes only lent to navigators by the India House, and at the end of a voyage they had to be returned to that institution².

Very clear testimony to the effectiveness of this policy of suppression is provided by fifteenth-century cartography. The case of Behaim's globe is fairly typical. It has been shown elsewhere³ that the only known map bearing any resemblance in its West African nomenclature to the globe of 1492 is the Martellus map of about 1489⁴; secondly, that it is impossible to detect the direct influence of Portuguese sailing charts either on Behaim's nomenclature or on his delineation of the coast and, thirdly, that at least half of his West African place-names have no known source. Now if they had a *bona fide* source, it is almost certain that they must have been derived ultimately from Portugal, particularly as Behaim was intimately associated with the life of that country from 1484 to 1490. However, if this were so, it is difficult to see why these names should have remained entirely unutilised by later map-makers—a difficulty all the greater, if, as Behaim averred, he accompanied Diogo Cão on his second voyage, where the information would have been secured. Have we, then, to assume that Behaim invented 50 per cent. of his nomenclature? The conclusion appears to be inevitable, but in the light of the Portuguese conspiracy of silence such a fabrication is readily understood. In Germany people were crying out for an up-to-date picture of the world that should incorporate the results of the Portuguese discoveries. Was Behaim to confess that the Portuguese had kept back the details, or was he to invent them? The desire to appear before his fellow-countrymen as a successful explorer as well as a great traveller may have dictated the answer.

In face of evidence of this character it becomes quite feasible to suppose that the *Esmeraldo* came under the ban of the censor, and that the latter part of the work may after all have been

¹ *Historia da Colonização Portuguesa do Brasil*, vol. II, p. 227.

² *Vide* E. Prestage, *Portuguese Pioneers*, p. 171.

³ G. H. T. Kimble: "Some Notes on Mediæval Cartography," *Scottish Geographical Magazine*, vol. XLIX, 1933, pp. 91 *et seq.*

⁴ Brit. Museum Additional MS. 15,760.

written and portions subsequently suppressed in the interests of national policy. Tampering with documents was by no means unknown; it is now held by certain Portuguese scholars that even Zurara's Chronicle was truncated¹. Whatever the true explanation of its "unfinished" condition², there can be little reasonable doubt that the *Esmeraldo* was censored; its map of the world³ and its numerous unique sketches—"pintado pella natural"—were of far too great importance to remain open to public inspection. Some scholars⁴, indeed, have gone as far as to suppose that the maps were extracted of set purpose from the manuscript, basing their opinion on the absence of the maps from the existing copies of the original; but this is unwarrantable because Barbosa Machado, who saw the original in the eighteenth century, reports that it contained eighteen illuminated maps, besides some sketches⁵. The fact that Machado's reference is almost the only known allusion to the *Esmeraldo* in the first 250 years of its history is perhaps the most eloquent testimony that can be borne to the success of "the conspiracy of silence."

THE MANUSCRIPTS AND PUBLISHED EDITIONS OF THE *ESMERALDO*

The original manuscript of the *Esmeraldo* has been lost. How it was lost, or when, is unknown; it was still in existence in the middle of the eighteenth century as we have just said. Were it not for the fact that Barbosa Machado tells us that it was housed in the library of the Marquesses of Abrantes—situated some seventy miles from Lisbon—we might have been tempted to attribute its disappearance to the ravages of the great Lisbon earthquake of 1755; whatever its fate, it is not heard of again

¹ E.g. A. J. da Costa Pimpão, *A Cronica de Guiné*, vide E. Prestage, *op. cit.* p. 169.

² It is just possible that there is an entirely different explanation, and that Pacheco was the victim of jealous intrigue; for in book II, chap. 9, he complains of "railers, backbiters and slanderers" who were seeking to frustrate his design.

³ Book I, chap. 5.

⁴ E.g. E. Prestage, *op. cit.* p. 171.

⁵ *Biblioteca Lusitania*, vide A. Cortesão, *Cartografia e Cartografos Portugueses dos Seculos XV e XVI*, vol. II, chap. 8, pp. 105 et seq.

after Machado's time. There are, however, two copies extant, one in the Evora library¹, and the other in the Biblioteca Nacional at Lisbon². The Evora manuscript, according to the authority of Gabriel Pereira and Pedro de Azevedo, belongs to the reign of John V, that is, to the first half of the eighteenth century³. Raphael de Azevedo Basto, on the other hand, judges it to be in a late sixteenth-century hand, and to have belonged to the Bishop of Oporto, Rodrigo da Cunha⁴. The Lisbon manuscript, made on paper of the Lousã mill (founded in 1748), belongs on palæographic grounds to the second half of the eighteenth century. In a note at the end, written in a still later hand, it is stated that the manuscript appears to have been copied from the copy belonging to the aforesaid Bishop of Oporto⁵. This second copy, purchased by the Biblioteca Nacional in 1867, is thought by Basto to be the same as that which figures in the catalogue of the Evora library—compiled by Sr. Rivara—under Cod. $\frac{\text{CXV}}{1-4}$, with a note to the effect that on September 4th, 1844, it was taken from the library by order of one of the King's ministers and was not restored. Basto believes, furthermore, that at no time have there existed more than the two copies cited in the Evora catalogue⁶.

Of the two copies the older is reckoned to be the more faithful; such errors as it contains are due in all probability to obscurities in the original text. The Lisbon copy, in addition to perpetuating the errors of the earlier version, contains many others resulting from careless transcription.⁷ For this reason the Evora manuscript is used as the basis of the following translation; fortunately, however, none of the errors, whether misspellings or misinterpretations, is sufficiently serious to obliterate the sense of the original.

As far as I am aware, there have been only two complete editions of the *Esmeraldo* up to the present time, and both of these are in Portuguese. The first appeared in 1892 to com-

¹ Cod. $\frac{\text{CXV}}{1-3}$, 1 vol. fol., 100 leaves.

² Cod. B, 17, 1 vol., 80 leaves.

³ Vide Epiphany da Silva Dias, *Esmeraldo*... edição critica, 1905, p. 5.

⁴ *Esmeraldo*... edição comemorativa, 1892, p. ii.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ Vide Frontispiece.

memorate the four-hundredth anniversary of Columbus's discovery of America. It was edited by Basto and contains a fairly lengthy introduction. Besides printing the manuscript, though with scant regard for accuracy, Basto collated a large number of documents bearing upon the life and work of Pacheco; some of these are here reproduced in facsimile. The second edition is the work of Epiphanio da Silva Dias and was published in 1905. Much less lavish in design than its predecessor, it is a much more scholarly work; of particular critical value are the footnotes, which, among other things, call attention to the verbal discrepancies between the Evora and Lisbon manuscripts. The text is universally adjudged to be reliable and, whenever in doubt, it has been resorted to for the purpose of the present work.

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PROLOGUE

THE BEGINNING of the *Esmeraldo De Situ Orbis*, made and composed by DUARTE PACHECO, Knight of the Household of the late King John II of Portugal, addressed to the most high and mighty Prince and most Serene Lord King Manuel, our sovereign, first of this name to reign in Portugal.

MOST HIGH AND MIGHTY PRINCE AND SERENE LORD, WE could not escape censure were we to allow to fall into oblivion without record the worthy fame of our forefathers and [other] excellent men who deserve to be held in perpetual remembrance; for the knowledge of their great deeds increases the glory of your name, even as in noble works your Highness excels them. And inasmuch as the ancient writers, from whose works we have received instruction, treated of the discovery of the sphericity of the earth and of the sea, concerning which they held various opinions, and inasmuch as the present time is appropriate for dealing with this subject, your Highness must know that Marcus Strabo of Cappadocia, a very ancient writer and of great authority, says, almost in the middle of the first book of his *Cosmography*¹: "it will suffice if, eliminating further discussion, we write only of the men who relate their navigation to Ethiopia." Some say that Menelaus², making his way round by Calez³, took his course as far as the region of India; and the time agrees with the length

¹ *Geography*, book I, chap. 2, para. 31.

² According to the Homeric tradition (*Odyssey*, book IV, *passim*), when Menelaus was driven out to sea in attempting to double Cape Malea, a part of his fleet was carried to Crete and the rest, with Menelaus himself, was driven to Egypt. While there, Menelaus visited the countries that surround the eastern head of the Mediterranean: he tells Telemachus that he wandered to Cyprus, Phœnicia, Ethiopia, the land of the Erempi and Libya. Exactly what significance can be attached to the mention of Ethiopia it is impossible to say, but seeing that nothing is said about the Sahara, the Nile or the West African coast, there is no reason to suppose that Menelaus anticipated in any way the explorations of later times.

³ I.e. Cadiz.

of the journey which is given in Homer¹: "I came back with ships in the eighth year." Others say that he made his way through the isthmus, that is, between the two shores of the Arabian Gulf; and Caius Pliny, a Roman senator and an excellent writer, in the second book of his *Natural History*, chapter 69², states that Hanno the Carthaginian sailed from Calez to the Arabian Gulf. Further, these authors say³ that Eudoxus, fleeing from King Latirus of Alexandria, sailed from the Arabian Gulf to Calez; and Pomponius Mela⁴, a very ancient writer born near Gibraltar, also affirms this, and states moreover near the end of the third book of his *De Situ Orbis* that this Eudoxus was the first to bring fire and its use to the barbarous peoples of Ethiopia, to whom it was till then unknown; and some of the other cosmographers agree as to this. However this navigation and its use was lost to all the men of old time in such wise that during 1500 years or more it was altogether forgotten and dead. A new beginning was made by the most excellent prince, a prudent and virtuous man, the Prince Henry, Duke of Viseu and Lord of Covilhan, your late uncle, who, illuminated by the grace of the Holy Spirit and moved by a divine mystery, at great cost to his estate and to the lives of the Portuguese in his household, ordered the island of Madeira to be discovered and peopled. In addition he discovered land in Guinea (formerly known as Ethiopia) from Capes Nam and Bojador to Serra Lyoa, distant from these realms 650 leagues and lying 8° north of the Equator; owing to him it comes about that a great part of the Ethiopians, who were almost beasts in human form, cut off from divine worship, are learning the holy catholic faith and are daily being converted to the Christian religion. In order that this enterprise might be carried out with greater security and blessing it was first entrusted to him by the Holy Fathers of Rome, Popes Eugene IV, Martin V and Sixtus IV, and by others who succeeded them, who decreed that the said Prince and all the lawful

¹ *Odyssey*, book IV, ll. 81-2. Judging from the Homeric text it would appear that Pacheco is quoting Strabo on Homer, not Homer himself.

² Actually chap. 67.

³ *Natural History*, book II, chap. 169; *Geography*, book II, chap. 3, paras. 4 and 5.

⁴ *De Situ Orbis*, book III, chap. 10.

Kings of Portugal who came after him should for ever possess from the Capes Nam and Bojador all the islands, harbours, commerce, traffic, fisheries and conquests of the whole of Guinea discovered or to be discovered on the eastern and southern coast, including India; with innumerable excommunications, prohibitions and interdictions forbidding any other princes, lordships or communities to have any part in the said regions, as is set forth at greater length in the bulls¹ and letters granted to the said Prince and to the Kings of Portugal, which are kept in the Torre do Tombo in this city of Lisbon. On the death of this holy Prince, his nephew King Afonso V continued this conquest and discovery. In the year of Our Lord Jesus Christ 1460 on the 13th day of November the virtuous Prince Henry died, and after his death the excellent King Afonso V ordered the discovery to be continued from Serra Lyoa (where he left off)² all along the coast of Malagueta and Mina from the R. dos Escravos to Cabo de Caterina, a distance of some 650 leagues beyond Serra Lyoa.

After the discovery of all these regions and provinces and the death of King Afonso, the most serene Prince King John II, his son, continued this enterprise; he is worthy of eternal remembrance, for, in his great desire to increase the commerce and wealth of these realms, he ordered³ the discovery of the islands of S. Thomé and S. Antonio and peopled them as a base for the navigation to India, which we must hold he would have discovered had Our Lord granted him longer life. Further he founded the city of S. Jorze da Mina, which is now so valuable to your Highness and to your realms. To avoid prolixity I omit the details of many discoveries which this glorious prince ordered³ me⁴ and others of his captains to make at many places and rivers along the coast of Guinea, the interior of which was unknown in the days of Prince Henry and King Afonso. He thus discovered [the coastline] from Cabo de Caterina, where

¹ Zurara reproduces one of the earliest and most important of these bulls (dated 5 January 1443) in his *Chronicle of Guinea* (Hakluyt Society), chap. 15.

² This is the usual belief, based on the Cadamosto narrative, but Dr Jaime Cortesão is of the opinion that Cape Palmas was reached. *Vide Historia de Portugal* (edited by D. Peres), vol. III, p. 382.

³ Portuguese *mandou*.

⁴ *Vide* Introduction, p. xiii.

his father left off, to Cabo de Boa Esperança, which is in the latitude of $34\frac{1}{2}^{\circ}$ south, and from there on to Penedo das Fontes, which we also know as Ilheo da Cruz, 160 leagues beyond that cape. Thus this excellent prince discovered in all 760 leagues of coast, including the kingdom of Maniconguo¹ and many other peoples; and the navigation to these lands is stormy and difficult. From this [discovery] arose the hope and will to discover India, which has now been made known to your Majesty.

All these things are true, most serene Prince, and many of them happened in our day. But what shall I say of your Highness and of the divine grace which the supreme Creator shed upon your spirit, endowing you with greater understanding, knowledge and fortitude than all your predecessors, ancient and modern?² . . . For in the second year of your reign 1497 A.D. and the 28th year of your age your Highness ordered the discovery to be continued from Ilheo da Cruz³, where King John left off, and without counting the great and heavy expense, a portion of Ethiopia under Egypt⁴ was discovered, which from the earliest times to our day was utterly unknown. Your captains discovered anew the great mine which some hold to be that of Ophir⁵ and is now called Çofala, whence the most wise King Solomon

¹ *Vide infra*, book III, chap. 2.

² There is a small lacuna in the text at this point.

³ This was the most easterly point reached by Dias—25 leagues west of the Rio do Infante.

⁴ Cf. book I, chap. 27.

⁵ The theory that Ophir was a locality on or near the East African coast in the neighbourhood of Sofala is now almost without supporters. "The whole argument," says Schoff (*Periplus of the Erythræan Sea*, p. 97), "was pure assumption, as there is no reference in ancient literature to any knowledge of the African coast within 600 miles of the point of Sofala." Some have thought to establish the identity of Ophir and Zimbabwe in Mashonaland, but careful investigation of the site by Dr Randall MacIver and other archaeologists has resulted in depriving the ruined city of any claim to great antiquity. It is now widely held that Ophir was located on or near the Oman Coast of Arabia (*vide* "The Expanse of the Earth as known in Old Testament Times," by the present writer in the *Journal of the Transactions of the Victoria Institute*, vol. LXVII, p. 210). English writers in Pacheco's day placed Ophir near the Moluccas (*vide* Robert Thorne's map of 1527). The "great mine" Pacheco speaks of was not at Sofala. This town was simply the Arab and negro emporium for the barter of gold that came from mines in the interior (cf. St Jorze da Mina). Enciso, *vide* Barlow, *Brief Summe of Geographie* (Hakluyt Society), is nearer the truth when he speaks of "the people of the country brought thider (i.e. to Sofala) moche golde. . .," p. 109. Cf. *The Book of Duarte Barbosa*, edited by M. L. Dames, vol. I, chap. 4 (Hakluyt Society).

according to¹...the ninth chapter of the third book of Kings² and the eighth chapter of the second book of Paralipomenon³, drew 420 talents of gold with which he built the holy temple at Jerusalem. And further at your command a great portion of the sea was discovered until the province of Maabaar⁴, known as Lower India, was revealed. Here many great cities and notable towns were discovered, among them the ruined city of Malipor⁵, where we believe is the holy sepulchre of the blessed apostle St Thomas and where Our Lord has performed many miracles.

Among all the western princes of Europe God chose out your Highness to receive this blessing and possess the tributes of the barbarian kings and princes of the East. Rome in the time of her prosperity, when she ruled a great part of the world, could never thus make them tributary; on the contrary, fighting for their independence, they slew Marcus Crassus, a very brave captain, killing 20,000 of his army and taking 10,000 prisoners⁶; and now by divine sanction and special grace your Highness rules over all, the path of your knights extending through the

¹ A small lacuna at this point.

² In the Septuagint and Vulgate versions of the Bible, the title of First and Second Book of Kings was given to the Books of Samuel, and the Books of the Kings (so called in the Hebrew version) were known as the *Third Book of Kings* (the two books forming a unit). The passage referred to is I Kings ix. 28.

³ The Septuagint name for the Books of the Chronicles, the word denoting that they are supplementary to the preceding historical books. The passage referred to is II Chronicles viii. 18.

⁴ I.e. Malabar. In the sixteenth and seventeenth centuries, the name was commonly applied to both the East and West coasts of Southern India, *vide* T. Bowrey, *The Countries round the Bay of Bengal*, 1669-1679, p. 6 (Hakluyt Society).

⁵ Early ecclesiastical legends going back to the third century A.D. affirm that the Apostle St Thomas preached Christianity in the domains of one Gondophernes, who ruled over an extensive realm in the Kandahar country, where the Apostle was martyred. Another group of traditions alleges that the same apostle was martyred at Mailāpur near Madras. Some writers have tried to reconcile the two stories in some measure by guessing that St Thomas may have first visited Kandahar and then gone to the Peninsula. The evidence does not permit us to come to any certain conclusion. Cf. *The Book of Duarte Barbosa*, vol. II, chap. 99 (Hakluyt Society).

⁶ The reference is to the disastrous Roman campaign against the Parthians in the spring of 53 B.C. As a result of the battle of Carrhae on the River Belik in Upper Mesopotamia, only 10,000 of Crassus's 44,000 men ever returned to Syria. The 10,000 prisoners were settled at Merv to keep the Parthian frontier. It was one of the worst defeats sustained by the Roman arms.

lands and seas of India and the coasts of Asia as far as the conquests of Alexander. The valiant advance of the Portuguese arms and fleet, which by your command and power perform such mighty deeds, so augments your glorious fame that it sounds through the whole of Europe and Africa, Arabia, Persia, through the lands of the Elamites, Babylonians, Chaldeans, Medes, Assyrians, Parthians, Phoenicians and the peoples of Palestine; it even penetrates to the very distant and ferocious peoples of Cithas¹ and the most wealthy kingdoms of India. We may therefore rightly assert that the glory of your victories and praise of your name and your mighty navigation and conquests exceed those of Menelaus and Hanno of Carthage and Eudoxus, greatly praised and glorified by ancient writers, as of all the kings and princes who preceded you. For in a short space of time your Highness discovered nearly 1500 leagues beyond the discoveries of all the ancients and moderns, unknown and unnavigated by any nations of our West. And now, for the greater safety of this navigation, it is well that your Highness should order the discovery and exploration of the coast from Ilheo da Cruz, since at its first discovery it was made known in general and not in detail; and because your Highness informed me that you wished to entrust this to me, I have undertaken a book of cosmography and navigation, of which this is the preface. The book will be divided into five books; the first will treat of the discoveries of the virtuous Prince Henry, the second of those of the excellent King Afonso, the third of those of the most serene King John as far as Ilheo da Cruz, as I have said; the fourth and fifth will deal with the glorious achievements of your Highness, which in extent and quality exceed those of all the other princes. The former of these books will begin at Ilheo da Cruz and end at Cabo de Guardafui² at the entrance of the Arabian Gulf³, . . . and so on to the Persian Gulf and the whole of India. This is the order and subject matter of the five books, and they will not only be necessary for the prosecution of this navigation and

¹ I.e. Scythia.

² I.e. Cape Guardafui.

³ I.e. Red Sea. There is a lacuna at this point. Judging by the context it must have contained originally some such words as "and the second book will begin at the entrance of the Arabian Gulf."

commerce, but will ensure to our heirs and successors an eternal memory and remembrance by which they may know your excellent deeds, so worthy of glorious immortality. Yet what eloquence can be so matchless as perfectly to set forth the measure of the great achievements of our Emperor Manuel? For surely Marcus Tullius, the most excellent orator of the Romans, and Homer and Demosthenes, the principal orators among the Greeks, would fear to set their hands to the description of achievements of such importance; but I leave all that to the historian of your reign. Here I hope to deal at length with that which appertains to cosmography and navigation; and therefore I will first briefly mention some of the greater circles¹, and the size of the earth and of the sea and which of these is the greater, and I will rapidly describe the greatness of Africa and of Asia, where your victorious arms flourish in the east and in the west. I will limit myself to these two² [continents], the interior I will only briefly describe, but the coast and all that concerns navigation and cosmography I will deal with at greater length; thus all the routes will be stated, namely the position of places and promontories in relation to one another, in order that this work may have an ordered basis and that the coast may be navigated in greater safety: similarly the landmarks and shallows, for these are essential; and the soundings, both their depths and the kind of bottom, whether it be mud or sand or rock or gravel or snags or shingle, and the distance of the soundings from land: similarly the tides, whether they flow NE and SW as in our Spain³, or N and S or E and W or NW and SE, which it is essential to know in order to be able to enter and leave the bars

¹ According to mediæval and renaissance theory the sphere was divisible into a number of circles. Martin Cortes, for instance, in his *Art of Navigation* (translated by R. Eden), chap. 9, says: "The sphere is compounded of ten circles imagined. And (as saith John de Sacrobosco in his booke of the Sphere) sixe of them are greater and foure lesse. The greater circle is that which devideth the sphere into two equall partes and hath his centre with the centre of it. These are the Equinoctiall [i.e. the Equator], the Zodiac, the two Coluri, the Horizon and the Meridian. The lesser circle is that that devideth the sphere into two unequal partes. These are the two Tropykes and two Polar circles." Cf. R. Barlow, *Brief Summe of Geographie* (Hakluyt Society), p. 3.

² Lacuna. The sense seems to require only the one word we have inserted.

³ *Vide* Introduction, pp. xxvi *et seq.*

and mouths of rivers: further, the altitudes of the poles, by which one may know the latitude of a place and its distance from the Equator. I will also describe the inhabitants of this land of Ethiopia and their way of life and commerce; and I will set all this¹ forth diligently for the service of your Highness as best I know and can in this book, which will be called *Esmeraldo De Situ Orbis*². And when this and other things that your Highness commands are performed, we will be able to say of you what Virgil said³ of Caesar Augustus: "You rule over the mighty sea and everybody honours your greatness and Ultima Thylle [i.e. the ends of the earth] will serve you."

¹ The text is slightly corrupt at this point, but not sufficient to make the meaning obscure.

² *Vide* Introduction, p. xvii.

³ *Georgics*, book I, ll. 29-30:

"An deus immensi venias maris, ac tua nautae
numina sola colant, tibi serviat ultima Thule."

Pacheco translates it rather freely.

FIRST BOOK

THE BEGINNING of the FIRST BOOK, with a particular description of some of the greater circles and of the property of the earth.

Chapter i

WE KNOW THAT THE PHILOSOPHERS AND WISE MEN OF old gave the name of world and sky and other names to that which embraces all things in its ambit¹, and they called it East or Orient where the sun rises² and West [or]³ Occident where it sets and the intervening space South and North. What is here briefly set forth concerns only the greater circles. On this subject, they affirmed, moreover, that the earth is set in the centre³ and is surrounded on every side by the sea; and that the earth is divided into two parts or hemispheres from east to west and on the east into five zones⁴; the middle zone, which is called the equinoctial zone or the zone of primary movement, is distressed by the great heat of the sun, but is nevertheless well peopled; it is believed that the colour of the Ethiopians is so black because

¹ Literal translation of passages in P. Mela, *De Situ Orbis*, book 1, chap. 3.

² Text slightly corrupt.

³ Cf. *De Situ Orbis*, book 1, chap. 4.

⁴ The division of the earth's surface into zones, corresponding to the zones into which astronomers divided the heavens, goes back to classical times. The number of such zones was unanimously set at five, commonly designated as Septentrionalis, Solstitialis, Equinoctialis, Brumalis (or Hyemalis) and Australis, but there was considerable difference of opinion concerning their habitability. The prevailing view down to the middle of the mediæval period was that the two polar zones and the equatorial zone were uninhabitable, the former by reason of cold, and the latter by reason of heat. Later opinion was inclined to reject the inhabitability of the equatorial zone, because of growing evidence that there were people living near the equator. Pacheco of course had to reject the traditional belief about the Torrid Zone, but he still held to the view, common in the Middle Ages, that an Antipodean race inhabited the southern temperate zone; although part of this southern zone was discovered in his own day, he nowhere suggests that South Africa is the home of the Antipodes. The reason for this may be that, in the popular imagination, the home of these people was in an "austral continent." On the general question of the Antipodes and "Terra Australis" vide A. Rainaud, *Le Continent Austral*.

they dwell near this zone, while it is said that the climate of the two zones nearest the poles produces peoples of extreme whiteness and beauty, even more than the other two or temperate zones, where the seasons of the year are more equable. Of these two zones it is said that the Antipodes inhabit one part and we the other; they dwell on the opposite side of the earth, where the sun rises when it sets for us, and their feet are over against our feet, for which reason they are called Antipodes. The property of the globe is such that if one could pierce the earth and throw a stone in from its surface, thinking that it would come out on the other side, it would not go beyond the centre, but would remain there, for that is the lowest part (every other part being higher) and it is impossible and contrary to nature for any heavy thing to mount or move from the centre to the circumference. Thus the Antipodes inhabit the one part and we the other, and in the part in which we dwell no one is content with all the blessings that he possesses, and in the end eight feet of earth suffice us and there the vanity of all our cares is consumed away.

Chapter ii

Concerning the size and greatness of the earth and sea and which of them is the larger.

To describe the situation of the globe and the greatness of the whole earth and of the sea, the islands, cities, fortresses, animals and all the other things contained in it is a long and difficult matter admitting no elegance of style, for its order is confused; and owing to the earth's size it cannot be known in detail, but our admiration for so excellent a thing is such that it is full worthy to be described and discussed¹. Therefore we must consider how the philosophers who treated of this matter said that the earth is completely surrounded by the sea, bringing themselves to believe that the whole of our world, the seat of life and the glory of our empires is made into an island by the

¹ This sentence is very reminiscent of Mela's preamble to the *De Situ Orbis*.

surrounding waters, and their conviction of this was carefully reasoned; but some of the modern doctors have held different, even contrary opinions. For they sought to prove by the authority of Holy Scripture and able arguments opposed to those of the ancients that the earth is larger than the sum of all the waters, which are placed in the depths and concavity of the earth and are surrounded by the earth; as to which we must note the words of Jacob, Bishop of Valencia¹, an excellent scholar and master of sacred theology, who in his commentary on the Psalter and with reference to the Psalm 104 (which begins "Bless the Lord, O my soul" and has a verse "Who laid the foundations of the earth")² says that the waters are all set within the concavity of the earth and that the earth is far larger than all the waters. And Pliny in the second book of his *Natural History*, chapter 67³, says that all the waters are placed in the centre of the earth, and this is a conclusion which is not to be denied. That the truth may be further declared we may note the words of the first chapter of Genesis: "Let the waters under the heaven be gathered together unto one place⁴," the words "unto one place" showing that the earth is not surrounded by the sea, for if it were so these words would not have been used or required; rather it would have said "Let the waters be removed from the earth," in which case there could be no doubt that the earth is surrounded by the waters and only a small part of it uncovered for animals to dwell on; but since it says⁵ "Let the waters be gathered together unto one place" it was made clear that the waters remained in the concavity of the earth, since it is the nature of water to flow downwards, and following their nature the waters obeyed the behest of the Creator; so that we may say that⁵ this was according to nature, since the lowest part of the earth is its centre and on this the waters are founded. Consequently the prophet David in the thirty-third Psalm,

¹ I.e. Jacob (or Jaime) Perez, a native of Ayora in Valencia. He was Bishop of Nicopolis in Asia Minor and flourished in the latter half of the fifteenth century. His commentary is entitled *Expositiones in psalmos Davidicos*, and went through several editions before 1500. The passage referred to is found on p. 224 (1518 edition).

² Verse 5.

⁴ Verse 9.

³ Chap. 65.

Text slightly corrupt.

beginning "Rejoice in the Lord, O ye righteous" said "He gathereth the waters of the sea together as an heap: he layeth up the depth in storehouses¹," and since the depth of the earth is its centre the storehouse of the waters has this place for its foundation. It follows, therefore, that the earth contains water and that the sea does not surround the earth, as Homer and other authors affirmed, but rather that the earth in its greatness surrounds and contains all the waters in its concavity and centre; moreover, experience, which is the mother of knowledge, removes all doubt and misapprehension. Therefore, most fortunate Prince, we have known and seen how in the third year of your reign in the year of Our Lord 1498, in which your Highness ordered us to discover the Western region, a very large landmass with many large islands adjacent, extending 70° North of the Equator, and located beyond the greatness of the Ocean, has been discovered and navigated; this distant land is densely populated and extends 28½° on the other side of the Equator towards the Antarctic Pole. Such is its greatness and length that on either side its end has not been seen or known, so that it is certain that it goes round the whole globe². Thus if from the shores and coast of Portugal or from the Promontory of Finis-Terra or from any other point of Europe, Africa or Asia [sic] we sail across the Ocean due West and East, through 36 degrees of longitude (though some points are slightly more distant) which at eighteen leagues to the degree³ are 648 leagues, we find this land⁴, along which the ships and subjects of your Highness now coast at your command and permission. Following this coast 28 degrees from the Equator towards the South Pole there

¹ Verse 7.

² *Vide* Introduction, pp. xxi *et seq.*

³ This is an unusual reckoning, for in the normal Portuguese *Regimentos* distances were based on a degree of 17½ leagues. As Portuguese sailors reckoned 4 miles (Roman miles, 70 of which are equivalent to 64.4 English statute miles), 648 leagues are equal to 2592 Roman miles (or 2384.6 English miles). Now the only land a mariner is likely to find this distance west of Portugal is the Bermudas, some 500 miles from the American mainland. In point of longitude the north-east salient of Brazil satisfies Pacheco's figure fairly well; but this is by no means due west from "the shores and coast of Portugal." However, judging from the context, it was this region that Pacheco had in mind.

⁴ Corruption in the text.

is found much excellent Brazil¹, with which (and with many other things) the ships of these realms return heavily laden. Many years before this land was known or discovered Vincent in the first book of his "Mirror of Histories," chapter 177², said that "besides the three parts of the earth there is a fourth part beyond the Ocean to the South, where the Antipodes are said to dwell." Since this land beyond the Ocean is so large and on this side we have Europe, Africa and Asia, it is clear that the Ocean is placed between these two lands, with land on either side of it, and we can therefore affirm that the Ocean does not surround the earth as the philosophers declared, but rather that the earth must surround the sea, since it lies in the concavity of the earth and in its centre. Therefore I conclude that the Ocean is only a very large lake set in the concavity of the earth and that the earth and sea together form a sphere. From the Ocean many arms branch out and enter the earth and are known as mediterranean, and this we believe to be the truth. We have still to declare how much larger the earth is than the water, for the water only occupies a seventh part of the earth, as is shown in the fourth book of the prophet Esdras and the sixth chapter³: "On the third day Thou didst command the waters to be gathered together into a seventh part of the earth but six parts Thou didst dry up." Thus the water covers a seventh part of the earth and six parts of the earth are uncovered for the life of man and of the other animals; and this is a reasonable belief⁴.

¹ The word "brazil" is usually supposed to signify either some special kind of red dye wood or dye wood in general: however, in the commercial literature of the time there is little to identify it as wood at all. "Most likely many kinds of red wood suitable for dyeing and perhaps other vegetable products available for that purpose were included under the name 'brazil'" (W. H. Babcock, *Legendary Isles of the Atlantic*, pp. 54-5).

² Vincent of Beauvais's *Speculum Historiale*, chap. 77. The statement quoted by Pacheco is found also in Isidore (*Etymologies*, book xiv, chap. 5, para. 17), and in many other mediæval writers. It runs as follows: "Extra tres autem partes orbis quarta est trans oceanum interiorem in meridie qui solis ardore incognita nobis est. In quibus finibus Antipodes fabulose inhabitare produntur inhabitare."

³ Verse 42.

⁴ In mediæval times there were two main theories concerning the distribution of land and water. They were (a) the oceanic theory, that the "oikoumene" is surrounded by water, and (b) the continental theory, that the oceans of the earth occupy relatively small and enclosed basins. Orthodoxy de-

Chapter iii

*How Shem, Ham and Japheth, the sons of Noah, each inhabited his part of the earth after the Flood and how these parts were called Europe, Asia and Africa, and concerning the places that divide them*¹.

I am advised to tell how, after the universal flood and total destruction, from which by divine privilege holy Noah and his sons escaped, when the earth was uncovered and the waters had returned to their place, they and their descendants possessed the whole earth. Thus it is said that Shem, his eldest son, inhabited the Eastern region, Ham the South and Japheth the North. As there were three sons of this holy father, the ancient writers divided the earth that they knew into three parts, and long after the restoration of the peoples who were lost in the flood, when the earth was again fully peopled by man, Pomponius Mela and other ancient cosmographers as well as others who held this to be true during long ages, divided the earth into three principal parts. Of the fourth part, discovered at the

manded the acceptance of the former view (for it was supported, so its protagonists argued, by Holy Scripture, e.g. Ps. cxxxvi. 6), but there were various and even conflicting notions in regard to the size of the ocean or oceans which surrounded the known world. Abelard, for instance, held that all the earth's surface except the "oikoumene" was covered by water. Martianus Capella and Macrobius, who had a great following in the Middle Ages, held that there were three areas of land corresponding to our "oikoumene" in the other quarters of the globe and that, consequently, the ocean could not occupy a very large percentage of the total surface area. This view, of course, was in line with that of the Book of Esdras, which, although apocryphal, enjoyed much popularity in the Middle Ages (*vide* R. Bacon, *Opus Majus*, Bridge's edition, vol. I, p. 291). Pacheco, while conceding, with Bacon, that the water surface of the earth was small in comparison with the land surface, discards the oceanic theory (which Bacon held) in favour of the continental view that "the earth must surround the sea."

¹ The writers of antiquity and the Middle Ages were practically unanimous in their division of the "oikoumene" into three parts. Orosius, however, spoke of certain writers who divided the earth into *two* parts, making Africa a part of Europe, "because of its small size", and making Asia as large as Africa and Europe together (*vide Historia adversus paganos*, book I, chap. 2, para. 1). It was upon this latter belief that the characteristic symmetrical division of the earth in the "T in O" maps was based.

bidding of your Highness, being unknown to them, they said nothing. These three parts have from the beginning been called Asia, Europe and Africa. The name Asia is said to have been that of a queen who reigned in this region; the name Africa is said to be derived from Afer, the son of Abraham, who brought a great army and subdued the inhabitants, and those who afterwards possessed it were called Aferos and now are called Africans. For this reason it is believed that all this region is known as Africa¹. Europe took its name from that of a queen, the daughter of Agenor of Lybia; and from these or other causes these regions are universally known by these names. These regions are divided into three parts by the straits between the western Gaditanian² coast and Cepta³ and by two famous rivers, viz. the Tanais⁴ and Nile⁵; the division begins at the Rhiphaean mountains⁶, which are near the Arctic pole, where the Tanais rises, and running south through the country of the Scythians, flows impetuously into the sea of Tanais, formerly known as Palude Meotis⁷. By this river and the Mediterranean from Cepta to the Thracian straits, which were called the Hellespont, where the city of Constantinople is situated, and ending in the Lake Meotis, Europe is clearly divided from Asia.

¹ This is the usual derivation. Afer (or Ephraim as he is called in Genesis xxv. 4), however, was a grandson, and not a son of Abraham.

² I.e. belonging to, or in the neighbourhood of, Cadiz.

³ I.e. Ceuta.

⁴ I.e. River Don.

⁵ Cf. Mela, *De Situ Orbis*, book I, chap. 8, and Pliny, *Natural History*, book III, chap. 3. Throughout classical and mediæval times the Nile rather than the Red Sea was regarded as the frontier between Africa and Asia. The dividing line between Europe and Asia was not universally held to be the Tanais: some, e.g. Herodotus (*History*, book IV, chap. 45), preferred to give this distinction to the Phasis, i.e. Rion River, which enters the Black Sea near the town of Poti.

⁶ The myth of the Rhiphaean Mountains goes back to antiquity. It was popularised by Aristotle, who believed that these mountains gave rise to many of the large European and Asiatic rivers (*Meteorologica*, chap. 20). As no first-hand evidence was forthcoming until a relatively late date, the myth enjoyed a very long vogue. Some have sought to identify them with the Urals. The Don however rises on slightly elevated ground south of Moscow. The Rhiphaean mountains figure frequently on mediæval maps: e.g. the Hereford world-map (Riphyay montes) and Psalter map (British Museum Add. MS. 28,681).

⁷ The Sea of Tanais is of course the Sea of Azov, which was formerly known as Paludemoneon.

Chapter iv

Concerning the birth and course of the river Nile¹.

The river Nile rises in the Mountains of the Moon beyond the equator towards the Antarctic Pole. These mountains, according to the description of Ptolemy², and the place of the Nile's rising, 35° south of the equator, must be the rocky mountains of Cabo de Boa Esperança. And flowing from its springs it forthwith forms two great lakes and thence flows through the land of the Ethiopians over against the Tanais³; at 15° [north] it forms two branches which afterwards reunite. The land between these branches forms an island called Meroe; it is very large and well populated and is far better and richer than the other islands which the Nile forms with the overflow of its waters, as Pliny declares in the fifth book and ninth chapter⁴ of his *Natural History*. Pliny says⁵ further that the Nile flows for twenty days' journey underground and then reappears as a new river, and that the inhabitants of that region believe that the Nile rises there. Flowing thus it waters all the adjacent lands of Egypt and gives sustenance to the whole of that province, for in the months of June, July, August and September, when it is summer in Egypt and there is never any rain, the Nile overflows its banks and covers the fields of Egypt; after the waters have receded the earth is sown and cultivated and produces its fruits. When the Nile rises twelve covados⁶ it means famine; a rise of thirteen means a fair subsistence, fifteen gladness, and sixteen great fertility, according to Pliny⁷ in the chapter mentioned. It is certainly very remarkable that the Nile should overflow in the

¹ *Vide* Introduction, pp. xx, xxi, and Plate (opposite).

² *Vide Geographia*, book IV, chap. 9, paras. 23 and 24. But Ptolemy places the source 12½° S.

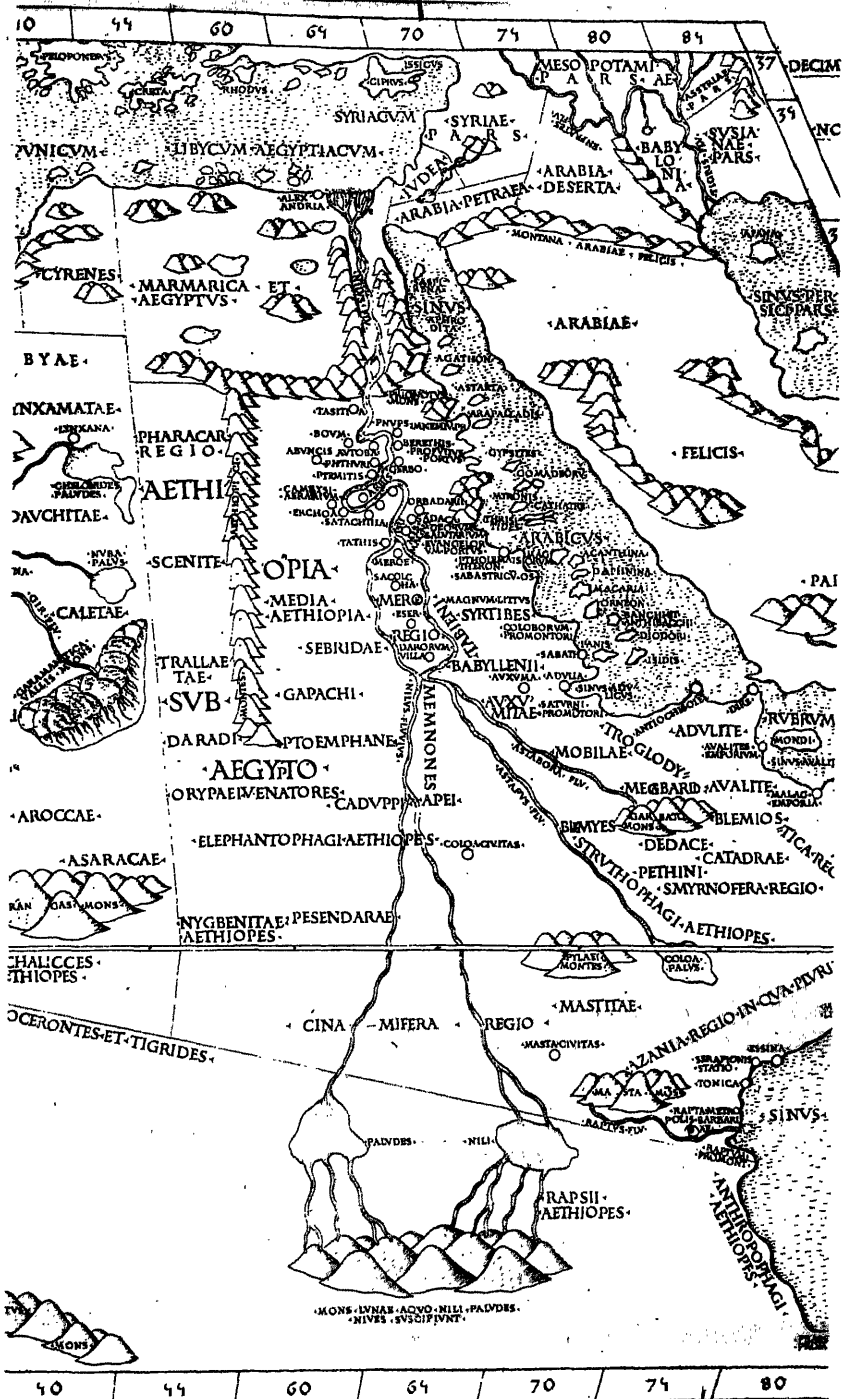
³ Cf. Mela, *op. cit.* book I, chap. 8 and book III, chap. 85.

⁴ Actually book V, chap. 10.

⁵ *Ibid.*

⁶ A Portuguese measure containing three-quarters of a yard or a Flemish ell.

⁷ Pliny's description runs as follows: (the) "most desirable height (of increase) is 16 cubits; if the waters do not attain that height, the overflow is not universal: but if they exceed that measure, by their slowness in receding they tend to retard the process of cultivation. . . . When the water rises to only



greatest heat of summer; the cosmographers who diligently sought out the reasons of this gave many causes, but that which best satisfies me is that, in the promontory where the Nile rises, the seasons are opposed and contrary to those of Egypt, since the centre of Egypt is 30° north of the Equator and according to the description of Ptolemy the region in which the Nile rises is 35° south of the Equator; in which region in the months mentioned we know that it is the depth of winter; and the rains which fall in this region in a few days reach Egypt owing to the rapid flow of the river, although it is then summer in Egypt, and it seems that this is the reason for the overflow of the Nile.

Chapter v

Concerning the four mouths of the Nile and where it enters the sea.

Concerning the floods of the river Nile of which we spoke in the preceding chapter we have learnt that a large arm flows through Lower Ethiopia towards the west, which the Ethiopians, according to its course from distant lands, say is the Rio de Çanagua¹; for of all the rivers of this land of Ethiopia which we have studied daily during many years we know certainly that this is the largest, as we shall set forth at greater length in the chapter dealing with the Rio de Çanagua². The other arm, flowing north, we know enters the sea of Egypt³ near the archi-

12 cubits, it experiences the horrors of famine: when it attains 13, hunger is still the result: a rise of 14 cubits is productive of gladness: a rise of 15 sets all anxieties at rest: while an increase of 16 is productive of unbounded transports of joy. . . ." (book v, chap. 10).

¹ I.e. the Senegal River: cf. Leo Africanus, *History and Description of Africa* (Hakluyt Society), vol. 1, pp. 124-5.

² Vide note on book 1, chap. 27.

³ It was not until the time of Solinus (*Collectanea Rerum Memorabilium*, chap. 24, para. 14) that the word "Mediterranean" came to be employed for the inland sea of that name, and then only as a convenient designation and not as a strictly geographical name. Pliny and Ptolemy both called it "Mare Internum," Mela "Mare Nostrum." In order to give its various parts exact definition, it was customary to apply the name of the adjacent country to them; hence "sea of Egypt." The archipelago referred to is of course the Ægean.

pelago by four mouths; the chief and largest of these was from very ancient times called Canopus after the pilot of Menelaus of that name who died there; it is now known as Raxete¹, and by this mouth many large boats and sailing vessels go up to the great city of Cairo and proceed thence much farther up the river. From this place to its source, the Nile divides Asia from Africa, and from the banks of the Nile further on all that part which extends thence to the East as far as the sea² where the Ethiopians dwell under Egypt and beyond there towards India, past the entrance and mouth of the river Ganges and the land of Chis³, passing, further on, the Hyperborean Mountains⁴ and the great province and region of Catay, which was formerly called Cithia, until it comes to an end in the sea which on the north washes the coast of Norway, once named Dacia⁵,—all this part is called Asia. The other part, which turns from the Nile westward across the land and also runs along the western Gaditanian coast of the Mediterranean and comes out by the straits of Cepta, enclosing this land of the Ethiopias of Guinea until it ends in the Cape of Good Hope,—all this part is counted as Africa. The same Mediterranean is that which divides Africa from Europe, and we call the north side Europe and the south side Africa. Ancient

¹ Canopus (or Canobus) was the name of the town at the mouth of the chief distributary of the Nile. In ascribing the origin of the name to Menelaus's pilot, Pacheco follows the Greek tradition, but it is more probable that it owed its appellation to the god Canobus, who was worshipped there with peculiar pomp. With the rise of Alexandria, Canopus began to decline: traces of its ruins are found about three miles from Aboukir. Rosetta (i.e. Raxete) is the modern successor of that town.

² I.e. Indian Ocean.

³ I.e. China.

⁴ These mountains, which, according to classical geography, marked the northernmost limit of the "oikoumene," were situated north of the Riphæan Mountains and were the home of a legendary race of that name. "Here," Pliny tells us, "we find light for six months together, given by the sun in one continuous day" (*Natural History*, book IV, chap. 26).

⁵ In the last quarter of the fourteenth century Norway was united to the crown of Denmark. Bishop Jacob Perez, whom Pacheco cites in book I, chap. 2, speaks of Norway thus: "cujus magna pars est sub domino regis dacie." Cf. Æneas Silvius's *Opera Geographica et Historica*, "Danian sive Dacium dicere volumus consuetudini servientes Germaniæ portio est" (1551 edition, p. 425). Jutland and the later kingdom of Denmark were generally called "Dacia" on maps and in learned works from the time of Pliny to the fifteenth century.

writers divided Africa into five parts¹; the first of these was called Libya, because the coast land from the Nile to the Cabo d'Antrefulcos², where the town of Melilla is situated, is called the Libyan Sea, the province deriving its name from this sea. The second part was called Mauretania, which extends from Melilla, where Libya ends, to the ancient city of Tingy, which we now call Tanger. This region is known as Mauretania and its inhabitants as Maurs: (owing to the alteration of a letter, however, we now universally call them Moors). The third part was called Tingitania, the coast as far as the city of Çafy³ taking the name of the ancient city of Tingi. The fourth part is Atlantica, and derives its name from the fabled Mount Atlas⁴ and the rocky coast as far as the beginning of Ethiopia⁵, and the sea along this coast took the name of Atlantic. The fifth part is Lower or Great Ethiopia, of which only your Highness possesses the trade. Into these five parts the whole of Africa is divided. Of Asia and what pertains to it and of how some authors aver that it is larger than Europe and Africa together we will speak in due course. I conclude then that the Mediterranean and these two rivers, the Tanais and the Nile, divide these three regions, and all the ancient cosmographers asserted this; but of the fourth region beyond the Ocean, which your Highness

¹ There was not the unanimity among ancient and mediæval writers concerning the division of Africa that Pacheco seems to think. Mela certainly divided the continent into five provinces—if we include Ethiopia (which he dealt with separately)—but his territorial divisions do not coincide in each case with those of Pacheco's list. They were: Cyrene, Lesser Africa (embracing part of Pacheco's Libya), Numidia and Mauretania. Pliny favoured a sevenfold division (eight with Ethiopia, which was again treated independently), as follows: Mauretania, Tingitania, Numidia, Africa, the Syrtes, Cyrenaica and Libya. Pierre d'Ailly in his *Tractatus de Imagine Mundi*—a typical late mediæval cosmography—also favoured an eightfold division: Africa (province), Cyrenaica, Tripolitana, Bizacium, Carthaginensis, Numidia, Mauretania and Ethiopia, but it was not customary to find the last-named province listed under Africa. In the minds of most writers Ethiopia did not merely denote the region beyond Upper Egypt and south of the Sahara, but the entire southern part of the known world, just as India sometimes was applied to the entire Far East. Egypt, it will be noticed, finds no place in any of these divisions. It was regarded as "the country which lies next to Africa" (Pliny, *op. cit.* book v, chap. 9), since it was commonly held that the Nile formed the boundary between Africa and Asia.

² I.e. Cap des Trois Fourches.

³ *Vide* note on book I, chap. 18.

⁴ *Vide* note on book I, chap. 21.

⁵ I.e. Senegal River, *vide* book I, chap. 27.

ordered to be discovered, they said nothing, since it was unknown to them¹. For the better understanding of our work we have set here a painted map of the world², with the shape and description of these lands, including Europe (although we are not writing about it) since it is one of the four parts of the world, albeit the ancient writers asserted that there were but three, Europe, Asia and Africa, of which we have spoken above. Pliny in the first chapter of the third book of his *Natural History* says that Europe, being more excellent than all the other parts of the world³, produces conquering races and that its position and foundation are more stable than the rest. Owing to its excellence some writers considered it to be not a third but a half⁴ of the whole earth; nor may we doubt that in cities, towns, walled fortresses and other stately and beautiful buildings Europe excels Asia and Africa, as also in her larger and better fleets, which are better armed and equipped than those of any other region; nor can the inhabitants of Asia and Africa deny that Europe possesses great abundance of arms and skill in them and much artillery, besides the most excellent scholars of all the world in every science, and that in many other respects it excels all the rest of the world. Since its excellence is such that it may not be briefly described, I have thought it better to be silent than to write little on this subject.

¹ This is a verbal repetition of the statement in chap. 3 (*vide* p. 15).

² *Vide* Introduction, p. xxx.

³ The text is corrupt at this point and it is not easy to say with certainty what Pacheco wrote, seeing that this passage, contrary to the tenor of Pacheco's words, finds no complete parallel in Pliny.

⁴ Cf. Pliny, *op. cit.* book III, chap. 5. This view originated with Herodotus, book IV, chap. 42, but it was strenuously opposed by Polybius and others even before the time of Pliny.

Chapter vi

*Concerning the advantage of knowing how to count
the world's degrees of longitude and latitude.*

Since we have promised in this work of ours to deal with navigation and the things of the sea, it is reasonable that we should fulfil our promise; and because the subject of astronomy is so well established as to be of great advantage to the matter in hand, we have thought it well to set down here the degrees by which some places known to us are distant from the Equator in the direction of the North or of the South Pole. And since it is necessary to explain the manner of counting the globe's degrees of latitude and longitude to the common unlettered people and especially to the mariners who sail across the surface of the seas of the world (they will derive great benefit if they will learn this, seeing that they sail afar to many countries and lands), we have set here a table of places, cities, lands and islands and their degrees of distance from the Equator towards the Poles, and later on we will say how the longitude and latitude of the globe must be taken.

Chapter vii

*Table of the latitudes of the following places
located north of the equator.*

	degrees minutes			degrees minutes	
Iherusalem	33	00	Damiata	31	00
Egipto	29	50	Anburi ³	20	00
Babilonia	33	30	Alcansatina ⁴	45	00
Meca	21	40	Rodes	36	00
Damasco	33	00	Sardenha	38	00
Ancron ²	33	00	Cezilia ⁵	37	00
Fugua do Egipto ¹	29	00	Roma	42	00

¹ Corruption for Acre?² Head of Nile Delta?³ Corruption for Anbur near Barcelona?⁴ Corruption?⁵ Sicily.

} All four names are found in
Zacuto's *Almanach perpetuum*
(1525)

	degrees minutes			degrees minutes	
Alixandria	31	00	Suecia ¹³	62	00
Genova	42	30	Norvegia	54	00
Napoles	40	40	Buda in Hungary	47	00
Constantinopla	43	00	Vilhana ¹⁴	39	16
Captor ¹	31	20	Mérida	39	08
Paris	48	00	Niebla	37	44
Lisboa	39	00	Narbona	40	43
Santarem	40	00	Hyta ¹⁵	40	49
Covilhan	41	00	Cadafalso ¹⁶	40	19
Medelim in Castille ²	38	50	Cáceres	39	44
Tanger	35	15	Trosilho ¹⁷	39	27
Sevilha	37	15	Pisa	42	30
Salamanca	41	19	Veneza	45	00
Cordova	37	44	Arzila	36	00
Toledo	39	54	Perepinhã ¹⁸	42	30
Legion ³	43	08	Panplona	43	30
Çamora	41	43	Logronho	42	20
Touro	41	44	Agueda ¹⁹	41	08
Ávilla	40	44	Lorca ²⁰	38	11
Valhadolid	41	51	Murcia	38	38
Medina del Campo	41	22	Tortosa	41	21
Benavente	39	11	Barcelona	42	19
Seguovea	40	57	Granada	37	39
Burguos	42	18	Verona	42	00
Santiago ⁴	43	07	Cuencua	40	30
Valença ⁵	39	52	Soria	41	38
Albuquerque ⁶	38	37	Almaria ²¹	37	30
Tolosa ⁷	43	00	Atença ²²	41	08
Viana Provincie ⁸	44	00	Vitoria	42	46
Brujas ⁹	52	00	Sena ²³	42	30
Collonha Agripina ¹⁰	51	00	Feez	33	00
Argentina ¹¹	47	00	Cepta ²⁴	35	20
Constancia	46	00	Aljazira ²⁵	37	22
Augusta Vindelicor-			Talaveira ²⁶	39	58
[um] ¹²	46	00	Écija ²⁷	39	33

¹ In southeast Spain. The portolan charts of the fourteenth and fifteenth centuries mark Captor midway between Malaga and Almeria.

² Near Badajoz. ³ Leon in Old Castille. Its Roman name was Legio.

⁴ I.e. Santiago de Compostela. ⁵ I.e. Valencia in Cáceres.

⁶ A town situated to the southeast of Valencia in the province of Badajoz.

⁷ Tolosa near S. Sebastian? Toulouse?

⁸ Vienne in Dauphiné?

⁹ Bruges.

¹⁰ Roman name of Cologne.

¹¹ Strasburg.

¹² Roman name of Augsburg.

¹³ Sweden.

¹⁴ Villena in Valencia?

¹⁵ Hita in Old Castille.

¹⁶ Cadalso in the province of Cáceres.

¹⁷ Trujillo to east of Cáceres.

¹⁸ Perpignan.

¹⁹ Near Aveiro in Portugal.

²⁰ Near Murcia.

²¹ Almeria.

²² Atienza in New Castille.

²³ Siena in Tuscany.

²⁴ Ceuta.

²⁵ Algeciras.

²⁶ Talavera in New Castille.

²⁷ Near Cordoba.

	degrees minutes			degrees minutes	
Palência	42	00	Coulam in India ¹³	08	00
Valença ¹	39	36	Xaul in India ¹⁴	22	00
Daroca ²	41	20	Melinde in Ethiopia	03	00
Saragoça	41	30	Ilhas do Fayal e do		
Taragona	41	53	Pico	38	30
Narbona	42	00	Hazamor	33	40
Cartagena	36	00	Cabo de Guer	31	25
Requena ³	40	16	Cabo de Nam	30	20
Alcantara	40	30	Ilha de Forte Ven-		
Madrid	40	24	tura in the Canaries	28	00
Jaem	37	56	Cabo de Bojador	27	10
Guadalajara	40	45	Angra dos Ruiuos	25	00
Alcalá	40	30	Angra dos Cavallos	24	00
Tordelaguna ⁴	39	58	Rio do Ouro	23	35
Colonia ⁵	51	00	Cabo das Barbas	21	30
Buarcos in Portugal ⁶	40	35	Cabo Branco	20	20
O Porto in Portugal	41	40	Rio de Çanaguá	15	20
Caminha	42	30	Cabo Verde and An-		
Ilha Terceira of the			gra de Bezeguiche	14	20
Azores	39	00	Cabo dos Mastos	14	20
Cabo de Finis terra	43	45	Ilha de Sam Thiago		
Sorlingua ⁷	..	..	de Cabo Verde	15	20
Hoexante ⁸	..	..	Rio de Guambea ¹⁵	13	00
Ho de Sines ⁹	38	00	Rio Grande	11	00
Ilha de São Miguel			Cabo da Verga	09	20
of the Azores	38	00	Ilhas dos Idolos	09	00
Cabo de São Vincente	37	00	Aguada da Serra		
Calez ¹⁰	37	00	Lyoa	08	00
Cabo de Espartel	35	30	Cabo de Santa Anna	07	20
Ilha da Madeira	33	30	Cabo do Monte	06	40
Cabo de Cantim	33	30	Rio dos Cestos de		
Trapana in Cezilia	36	30	Costa da Malagueta	05	50
Ilha de Xio ¹¹	38	00	Cabo das Palmas	04	00
Cabo de Santo An-			Castello de Sam		
gelo in Morea	36	00	Jorze da Mina	05	30
Maguadaxo in Ethi-			Rio da Volta	06	30
opia	02	30	Rio do Laguo	05	15
Cochim in India	09	00	Rio Feroso	..	..
Ilha d'Anjadiva in			Rio dos Escravos	..	..
India ¹²	15	00	Cidade do Benin	..	..
Calecut in India	11	20	Cabo Feroso	..	..
Cananor in India	12	00	Ilha de Fernã do Poo	..	..

¹ Valencia, capital of the province of that name.² Near Calatayud.³ Near Valencia.⁴ Torre laguna in New Castille.⁵ Cologne.⁶ Near Coimbra.⁷ Scilly Isles (*vide* portolan charts, e.g. Catalan Atlas, c. 1375).⁸ Ushant.⁹ Cape Sines in Southern Portugal.¹⁰ Cadiz.¹¹ Chios.¹² Anjdiv Is., about 50 miles SSE of Goa.¹³ Quilon in Travancore.¹⁴ Chaul, south of Bombay.¹⁵ Gambia River.

	degrees minutes			degrees minutes	
Serra Guerreira	03	00	Ilha do Sal near		
Ilha de Santo Antonio, also called			Ilha da Boa Vista	16	30
Ilha do Principe	03	00	Ilhas de S. Nicolao, Santa Luzia, Sam		
Ilha de Sam Thomé	01	00	Vincente. All these		
Ilha de Cori Mori			four islands close		
near Persia ¹	21	00	together, near the		
Ilha da Boa Vista	15	50	Ilha da Boa Vista	16	40

These are the latitudes of the following places located south of the equator:

	degrees minutes			degrees minutes	
Rio do Guabam on the equator	00	00	Cabo das Agulhas	35	00
Cabo de Lopo Gonçalves	00	10	Auguada de Sam Bras	34	30
Rio do Padram	07	00	Rio do Infante	33	15
Cabo ...y fuso ²	10	45	Ilheo da Cruz	..	..
Angra das Aldeas	16	20	Ilheos de Sam Christovã	32	40
Mangua das Areas	17	00	Ponta de Santa Luzia	30	00
Cabo Negro	18	00	Ponta de Santa Martha	26	00
Angra da Balea	21	00	Cabo das Correntes	24	00
Cabo do Padram	23	00	Cabo de Sam Sebastiam	20	30
Angra da Comceipçam	25	30	Çofalla in Ethiopia	20	00
Angra de Sam Thomé	27	40	Ilhas Primeiras	16	00
Angra das Voltas	29	00	Monsombique	15	00
Morros da Pedra	31	00	Cabo Delgado	10	00
Angra de Santa Elena	32	30	Quiloa	09	00
Cabo de Boa Esperança	34	30	Mombaça	04	30

These are the latitudes of the following places located south of the equator in the land of Brazil:

	degrees minutes			degrees minutes	
Angra de Sam Roque	03	30	Porto Seguro	18	00
Santa Maria d'Arabida	05	00	Rio de Santa Luzia	19	20
Cabo de Santo Agostinho	08	15	Ilha de Santa Barbara	20	20
Rio de Sam Francisco	10	00	Rio dos Harefeës	24	40
Auguada de Sam Miguel	10	00	Ilha de Santa Crara	24	40
Porto Real	14	00	Cabo Frio	25	00
Angra de Todolos Santos	15	40	Ilha de...Fernahu ³	27	00
			Ilha de Santo Amaro	28	30
			Ilha d'Acemsam ⁴	21	00
			Angra Formosa	15	00
			Ilha de Sam Lourenço	04	00

¹ Kuria Muria Isles off the south coast of Arabia.

² Ponta das Camboas? (*vide* book III, chap. 2). Text corrupt.

³ Text corrupt.

⁴ Ascension Isle.

Chapter viii

Concerning the Equator and the understanding of the earth's degrees of longitude and latitude.

We hold it to be a true and certain fact of astronomy that the Equator divides into two equal parts the circumference of the world, running from east to west and back to the east; being set at the centre of the globe it is distant ninety degrees from the Arctic Pole, which the mariners call the North, and likewise ninety degrees from the Antarctic Pole, which they call the South. A man standing with the Equator as his zenith will see the two poles level on the horizon¹. Since these terms "zenith" and "horizon" are only understood by the learned, we have thought it well to explain them here in order to instruct those who have no knowledge of this matter; they must know then that the zenith is nothing but an imaginary point in the sky immediately above our head, and if a thousand men are standing together, or separate, or more or less than a thousand, each will have his own zenith. The horizon is where it seems to us that the sky joins the sea or the earth and is called the "determinator"² of our vision since we cannot see beyond. Thus he who reaches a point where he has the Equator for zenith will see the two

¹ Pacheco presumably had in mind the polar circles of the celestial sphere and not the terrestrial sphere. Our polar (or arctic and antarctic) circle is fixed: his varied according to the view-point of the observer. His was the arctic circle of the Greeks, which was drawn on the celestial sphere parallel to the equator and tangential to the observer's horizon, and it therefore separated the circumpolar stars that are always above the horizon from the stars that rise and set with respect to his (the observer's) horizon. Since the altitude of the celestial pole is always the same as the latitude of the observer, the arctic circles would become zero for him at the equator: and, again, he would have no arctic circles if stationed south of the equator, nor would he have any antarctic circles if stationed north of the equator. Conversely, if the observer were at either of the poles the circle of the equator would become zero for him, that is, the equator would be his horizon—as Pacheco says lower down. (*Vide* Strabo, *Geography*, book II, chap. 2, para. 2, note, Loeb edition.)

² The word used by Pacheco—*determinador*—is the etymological definition of the Greek word *horizonte*, which the Romans translated by *circulus finitor* and *circulus finiens* (*vide* E. Dias, *op. cit.* p. 39).

poles equally touching the horizon, as I have said, and if he travels until he has the Arctic or Antarctic Pole as zenith he will see the Equator as the horizon. Further, you must know that the degrees of latitude of the surface and circumference of the world are counted from the Equator towards the poles, and the number of degrees that either pole is raised above the horizon (which is also called the circle of the hemisphere) gives the number of degrees that a place, or man standing at that place, is distant from the Equator. The degrees of longitude are counted from orient to occident¹, which the mariners call east and west, and this is difficult to ascertain because they have no firm and fixed point [of reference] as are the poles² for the latitudes, and of this I will say no more³.

¹ As a general rule, longitude used to be reckoned from the prime meridian which Ptolemy had used, namely that of the Fortunate Isles (i.e. Canaries) which were situated in the Western Ocean at what was regarded as the westernmost limit of the habitable earth. Accordingly the longitudes of places in the Old World came to be counted from west to east. Pacheco must have known that this was the practice of his own day, and therefore we can only suppose that he is guilty of a verbal slip in writing "from orient to occident" (but cf. R. Bacon, *Opus Majus—Mathematica*, chap. 16, p. 208, Burke's edition).

² Text slightly corrupt.

³ *Vide* Introduction, p. xx.

Chapter ix

Concerning the course of the sun towards the tropics.

Twice in the year the sun crosses the Equator, giving two equinoxes, one on the eleventh of March¹, when the sun is at the first point of Aries; the other on the fourteenth of September, when the sun is at the first point of Libra; at which times the day is equal to the night throughout the world. Moving from Aries the sun in its course gives us a high solstice, and proceeding till the twelfth day of June¹ enters the tropic and sign of Cancer, beyond which it never passes. This is called the summer solstice, and the sun's greatest declination from the Equator towards this region is $23^{\circ} 33'$ [north]². The sun then turns again and retires from Cancer and enters the sign of Libra on the fourteenth day of September¹ as I have said; proceeding, it gives us a low solstice until it reaches the tropic and sign of Capricorn on the twelfth day of December¹. This is called the winter solstice; its greatest declination is $23^{\circ} 30'$ ² [south] and this is its farthest limit. Thus it goes working and illuminating with its rays throughout the year, passing through the twelve signs of the Zodiac, entering and dwelling in one each month and leaving it to enter another. Because the altitudes of the poles calculated by the degrees of the sun's declination are required for fixing the latitude and distance of certain places north and south of the Equator we will write here the manner of doing this, since without this explanation nothing certain can be done. However he who wishes to understand this must first know how many degrees and minutes the sun declines daily and travels from the

¹ These dates are anterior to the reform of the calendar which took place in 1582 under Pope Gregory, when 11 days (5 to 14 October inclusive) were passed over.

² Up to the time of Pedro Nunes (*Tratado da carta de marear*) the most commonly given value of the sun's maximum declination was $23^{\circ} 33'$ —the figure adopted by Zarkali. The corresponding value given by Regiomontanus (*Ephemerides*) was $23^{\circ} 30'$. Nunes discussed the 3 minutes, and finding them unimportant dropped them. Pacheco compromised, adopting Zarkali's figure for the northern, and Regiomontanus's for the southern, declination.

Equator towards either of the tropics; and when this is known and also the time when the sun's declination must be added to the degrees of its altitude, or when the same declination of altitude is to be taken away or when there is no declination, then the degrees and latitude from the Equator towards either of the tropics and poles will be known.

Chapter x

How the degrees of the sun's altitude are to be added to its declination or the declination to be deducted from the altitude.

The altitude of the sun should be taken exactly at noon with the astrolabe or quadrant. He who takes it on the eleventh of March, and on the fourteenth of September, and finds it to be 90° , which is its maximum altitude, may know for certain that he is on the Equator and has it for his zenith; for at any other time except these two equinoctial days of March 11th and September 14th, the sun does not reach an altitude of 90° at the Equator. He who takes the altitude on these two days and finds it to be fifty or sixty or eighty degrees, or more or less, but still under ninety, will not have the Equator for zenith; to ascertain his latitude he must deduct the number of degrees of altitude from 90° and this will give him the number of degrees of latitude from the Equator towards either of the tropics.

Item. He who takes the altitude of the sun on the twelfth of June and finds it to be ninety degrees may know for certain that he is under the tropic of Cancer and so at a latitude of $23^\circ 33'$ from the Equator. If he finds an altitude of 90° on the twelfth of December he will be under the tropic of Capricorn. On these days one or other of the tropics will be his zenith and he will be in the aforesaid latitude, namely, $23^\circ 33'$ from the Equator.

Item. The astronomers have decided that the distance from the Equator towards each of the tropics should be called the

torrid zone and the "table"¹ of the sun. The sun pursues its course in this table throughout the year; while it rises to an altitude of 90° at the Equator and the tropics, as I have said in the preceding chapter, it also ascends during the course of the twelve months in travelling between these points that number of degrees in the said torrid zone. A man may be at such a place on any of the days of the year, and when the sun rises to an altitude of 90° it will be the zenith of his table; when he finds the altitude to be 90° , let him look at the table of the sun's declinations for the declination of that day. Let him then deduct this number from the 90° and the remainder will give the degrees of latitude that he is distant from the Equator in the direction of either tropic.

Item. If a man is at a place where the sun is between him and the Equator, whether the Equator be towards the Arctic or towards the Antarctic pole, let him first find the number of degrees of the sun's declination on that day and subtract them from the degrees of the sun's altitude; if he subtract the remainder from 90° he will have the number of degrees of latitude he is from the Equator in the direction of either tropic.

Item. If a man is situated between the sun and the Equator, towards either pole, he must first take the sun's declination for the day from the table of declinations and add its degrees to those of the sun's altitude, then subtract from 90° and the resulting number will give his distance in degrees of latitude from the Equator towards either tropic; but if the sum of the degrees of altitude and the degrees of declination exceeds 90° ², then the 90° must be subtracted and the resulting sum will give the degrees of latitude.

Item. If you are in a place where the Equator is between you and the sun, whether towards one pole or the other, first find in the tables of declination the degrees of the sun's declination for that day, then take the sun's altitude, adding its degrees to those of the declination and then subtract 90° . The result will

¹ Cf. Martin Cortes, *The Art of Navigation*, chap. 2 (translated by R. Eden).

² A moment's reflection will show that when the observer is between the sun and the equator the sum of the sun's noon altitude and declination must always be more than 90° , so that Pacheco's equation for this case should read: latitude (north or south) equals declination plus altitude minus 90° .

give the degrees of latitude that you are distant from the Equator towards either tropic.

He who would understand this work of ours must know the months in which the sun moves from the Equator to the tropic of Cancer and similarly to the tropic of Capricorn, as I have said in chapter 9; for if he knows the time of the sun's course towards either region and its declinations and the differences of the shadows it makes according to the month in which it is this side or that side of the Equator, he will be able to understand this work.

Chapter xi¹

How to compute the ebb and flow of the sea in the greater part of Spain and likewise in other regions where there are tides.

With very good reason we have based one part of our work on the art of navigation, as we have pointed out at the end of the Prologue to this book; and since we must make use of it in all our voyages by sea, we must briefly explain the calculation of the moon's course, by which we can know the ebb and flow of the sea; for those who know this calculation for the tides will be able easily to learn them and will know why the mariners say that in the greater part of this country of Spain they flow northeast and southwest. When these are known they will be able to judge by them if the tides elsewhere flow northeast and southwest, as in Spain, or wherein they differ. Thus we shall be able to know, wherever we are, either inland far from the sea or coming from the deep sea in search of land to enter some river, how the tide stands, judging by the phases of the moon and considering how many days have elapsed from the time of the conjunction and new moon to the day and hour for which we require to know the tide; with this knowledge our ships will be able to enter safely rivers and other places for which it is

¹ *Vide* Introduction, pp. xxvi *et seq.*

necessary¹ to know the state of the tide, without actually seeing its ebb and flow.

Item. We must first note that the astronomers have affirmed that from the time the moon is new and in conjunction with the sun, which the common people call "antrelunho," to the time when the conjunction and new moon recur, there is an interval of 29 days, 12 hours and 33 minutes²; and in every 24 hours (which is a natural day) after the conjunction, the moon draws away from the sun four-fifths of an hour and continues in this course during $14\frac{1}{2}$ natural days, 16 minutes and one second³, at the end of which time it is opposite the sun and full. It then begins to hide itself gradually and to conceal from our sight the light it receives from the sun, approaching the sun each natural day after the time of its opposition and full moon four-fifths of an hour again, until there is a fresh conjunction and a new moon; and this is the monthly movement of the moon as displayed before our eyes.

Item. There is a difference between the astronomers and the mariners concerning the course of the moon, for the astronomers say that during each natural day of twenty-four hours from the time of the conjunction and new moon to the time when it is full and in opposition to the sun, the moon draws away from the sun four-fifths of an hour and then similarly approaches the sun four-fifths of an hour daily until it is again in conjunction, as we have already explained in the preceding paragraph in this chapter; but the mariners affirm that the moon recedes from and approaches the sun only three-quarters of an hour in each natural day, which is equivalent to a quarter point on the compass. Accordingly there is a difference between them of a twentieth of an hour; and although the astronomers may be right in this matter and the mariners wrong, the difference of three minutes is so slight that it makes no difference, introducing

¹ The text is corrupt at this point.

² M. Cortes (*op. cit.*) gives 29 days 12 hours 44 minutes, which is the more usual figure, and correct to 3 seconds.

³ It is difficult to see how Pacheco arrived at this figure, for the "opposition" was usually regarded as occurring exactly half way through the lunar cycle. The general reckoning was 14 days 18 hours 22 minutes after conjunction.

neither difficulty nor palpable error into the calculation of the tides of which we hope to treat. We will therefore follow the opinion of the mariners, since the tides are more easily calculated by the compass than in any other way, according to the ancient practice of mariners.

Chapter xii

*How it is necessary, in order to learn the tide,
to know how to read the compass.*

He who wishes to learn to calculate the tides must first know all the points of the compass with its quarter points and half points, since this is the essential foundation of this matter and without it there can be no certainty. The mariners and pilots who practised this [art] of old first learned the points of the compass, quarter points and half points, and deduced therefrom the rhythm of the ebb and flow of the sea in the province of Spain and in other regions according to the difference of the tides, beginning from the Rio de Barbate in Andaluzia to Galiza¹ and the greater part of Bizcaya, calculating six hours ebb and six hours flow as follows: northwest and southeast, low tide; north and south, half way to high tide; northeast and southwest, high tide; east and west, half way to ebb. Now it must be understood that when the moon is in the northwest and southeast the tide will be low on the coast of Spain, and when it is in the northeast and southwest the tide will be high along the whole of the coast of Spain and along the coast of Berbery from the straits of Cepta; this is always so, whether the moon be new or half or full.

Item. The mariners say, what is indeed true, that from point to point of the compass there is an interval of three hours, the eight points making in all twenty-four hours or a natural day, and that each quarter point represents three quarters of an hour and each half point one hour and a half, and thus it [the day? sun?] advances regularly through all its points, half points and quarter points. When the moon is new and in conjunction with

¹ I.e. the province of Galicia in northwest Spain.

the sun, being in the southeast, the hour will be nine o'clock and the tide will be low on the coast of Spain outside the straits; for this reason the mariners say "northwest and southeast, low tide," since when the moon is in the northwest, whether it be new or in any other phase, there will be the same low tide. On the same day when the sun passes, with the moon in conjunction, to southeast by south the tide will be one-eighth full; when it passes farther to the southsoutheast it will be a quarter full; when it reaches south by east the tide will be three-eighths full. When the sun, with the moon in conjunction, is in the south it will be midday and the tide will be half full, and therefore the mariners say "north and south, half-flow," for when the moon is in the north it makes the same tide; when the sun and moon together are south by west the tide will be five-eighths full, and when they are southsouthwest the tide will be seven-eighths full, and when the sun and the moon together reach the southwest the tide will be high on the coast of Spain; it will then be three hours after noon. Therefore the mariners say "northeast and southwest, full tide," for the moon causes this same tide when it is in the northeast no matter what its phase, either in conjunction with the sun or away from it.

Item. When the sun and moon are in conjunction on the day of the new moon, when they pass from the southwest to southwest by west the tide will have ebbed one-eighth, and when they are at westsouthwest, a quarter; and when they are west by south, three-eighths; when they both reach the west it will be half ebb (each quarter point representing one-eighth of the tide). Therefore the mariners say "eastwest, half ebb," for when the moon is in the east it causes the same tide.

Item. When the sun and the moon in conjunction go from the west to west by north the tide will have ebbed five-eighths; when they pass to westnorthwest it will have ebbed three-quarters, at northwest by west it will have ebbed seven-eighths, and when they reach the northwest it will be low tide. Therefore the mariners say "northwest and southeast, low tide."

Item. When the sun and moon in conjunction are at northwest by north the tide will be one-eighth full, and at north-northwest a quarter; and at north by west three-eighths, on the

coast of Spain¹ as we have already said; therefore the mariners say "northeast and southwest, full tide."

Item. When the sun and moon, as we have mentioned above, are in northeast by east, the tide will have ebbed one-eighth, when they are in the eastnortheast, one-quarter; when in east by north, three-eighths, and when in the east, half ebb; therefore the mariners say "east and west, half ebb."

Item. Because the moon in every twenty-four hours (or one natural day) after its conjunction recedes from the sun one quarter point of the compass it was fitting that we should explain in the first section of this twelfth chapter why we began to calculate the tides at nine o'clock in the morning when the sun and moon were in conjunction in the southeast; and now having gone through all the points of the compass and explained about the tides², and twenty-four hours having passed since we began this work, and the moon being three-quarters of an hour behind the sun, it no longer makes the tide as on the previous day but three-quarters of an hour later, which is one quarter point of the compass. Because of this it is well that what we have explained should be known and we will end in the southeast where we began.

Item. When the sun and moon pass from the east to east by south the tide will have ebbed five-eighths, and when they are in the southeast seven-eighths³; and when the sun is southeast by south and the moon southeast it will be low tide on the coast of Spain outside the Straits. For this reason the mariners say "northwest and southeast, low tide." We have already said that twenty-four hours after the conjunction of the sun with the moon the tide is three-quarters of an hour later, and forty-eight

¹ There is a lacuna in the text at this point. Judging by the context the original presumably contained the indications of the state of the tide when the sun is in north, north by east, northnortheast, northeast by north and northeast.

² Text corrupt.

³ Pursuing Pacheco's reasoning, if the tide has ebbed five-eighths when the sun is east by south, it will have ebbed three-quarters when it is eastsouth-east and seven-eighths when it is southeast by east. Low tide, then, will occur when the sun is again in the southeast. But, by hypothesis, low tide should occur a quarter point later, i.e. when the sun is southeast by south. *Vide* Introduction, pp. xxvii, xxviii.

hours after the conjunction it is an hour and a half later, each twenty-four hours representing one quarter point of the compass; he who wishes to calculate the tide must therefore see in what point of the compass the sun is and then count the number of days which have passed since the conjunction, counting a quarter point of the compass for each twenty-four hours up to fifteen days or less, and according to the position of the moon will be the tide; that is to say, if it is in the southeast it will be low tide and if in the southeast by south the tide will be one-eighth full, and so on, as we have already explained. When this mode of calculating the tides of Spain is known it will be possible to infer whether the tides in other regions are the same or different.

Chapter xiii

How the ancient cosmographers began their description of the circumference of the globe from the mouth of the Straits, which order we will follow.

At the mouth of the western Mediterranean, where it is said that the columns of Hercules were placed, there are two promontories which excel in height and beauty all others in those parts; one of these is Abila at the beginning of Africa and the other Calpe in Europe¹, and here, properly speaking, is the mouth of the western Gaditanian straits, the only access to the Ocean according to some ancient writers. These promontories are now called Serra da Ximeira² and Monte de Gibraltar respectively; and from these the best cosmographers began their description of the circumference of the earth. We will do the same, limiting ourselves however to Africa and part of Asia, for they described Europe at such length that it is unnecessary to say any more about it. Although the ancient writers had much learning (and we might profit a little from certain parts of their

¹ Cf. Pliny, *Natural History*, book III, Introduction.

² I.e. Jebel Musa.

excellent works) yet because the navigation of Menelaus¹ the Carthaginian from Calez² past Ethiopia of Guinea to the Arabian Gulf and of Eudoxus from the same place to Calez had been lost sight of, we can make use of nothing in the books of the ancient cosmographers for this navigation; we must rely on the discoveries which at great toil and expense the aforesaid princes ordered to be made and on that which your Highness has discovered and recently learned. But because those who wrote of the world lacked both the practical knowledge and the foundations of the art of seamanship, which is so necessary for this matter that without it we can do or discover nothing by sea (but they in their cosmography omitted it, either because they did not know it, or did not think it essential), and because the light of the discovery of the circumference of the globe lies principally in this art of seamanship and in the routes and ways of the coast, it is well that we should set forth and explain that which the ancient and modern writers alike omitted, for the knowledge and fulfilment of this navigation of the Ethiopias of Guinea and of India and other parts; so that if time destroys the memory of this navigation, it can soon be recovered and reconstructed from what is here set down. Therefore, as a foundation for our work we will begin from the promontories of Ximeira and Monte de Gibaltar, following the order of the ancient writers, and we will describe the whole of the coast thither to the said Ethiopia and India, using the proper names and winds that mariners meet with and use, since it cannot be avoided. Ponta d'Almina is the actual part of Ximeira which the ancient writers called Abila³. Here is situated the great and excellent city of Cepta⁴, of which we give a drawing painted from sight, as also of Monte de Gibaltar, which marks the beginning of our western Straits; in the time of its prosperity Cepta excelled in greatness and wealth all the other cities of Mauretania and Tingitania and also some of those of Spain. This is where the lands of Africa, which abound in corn, wine, fruits,

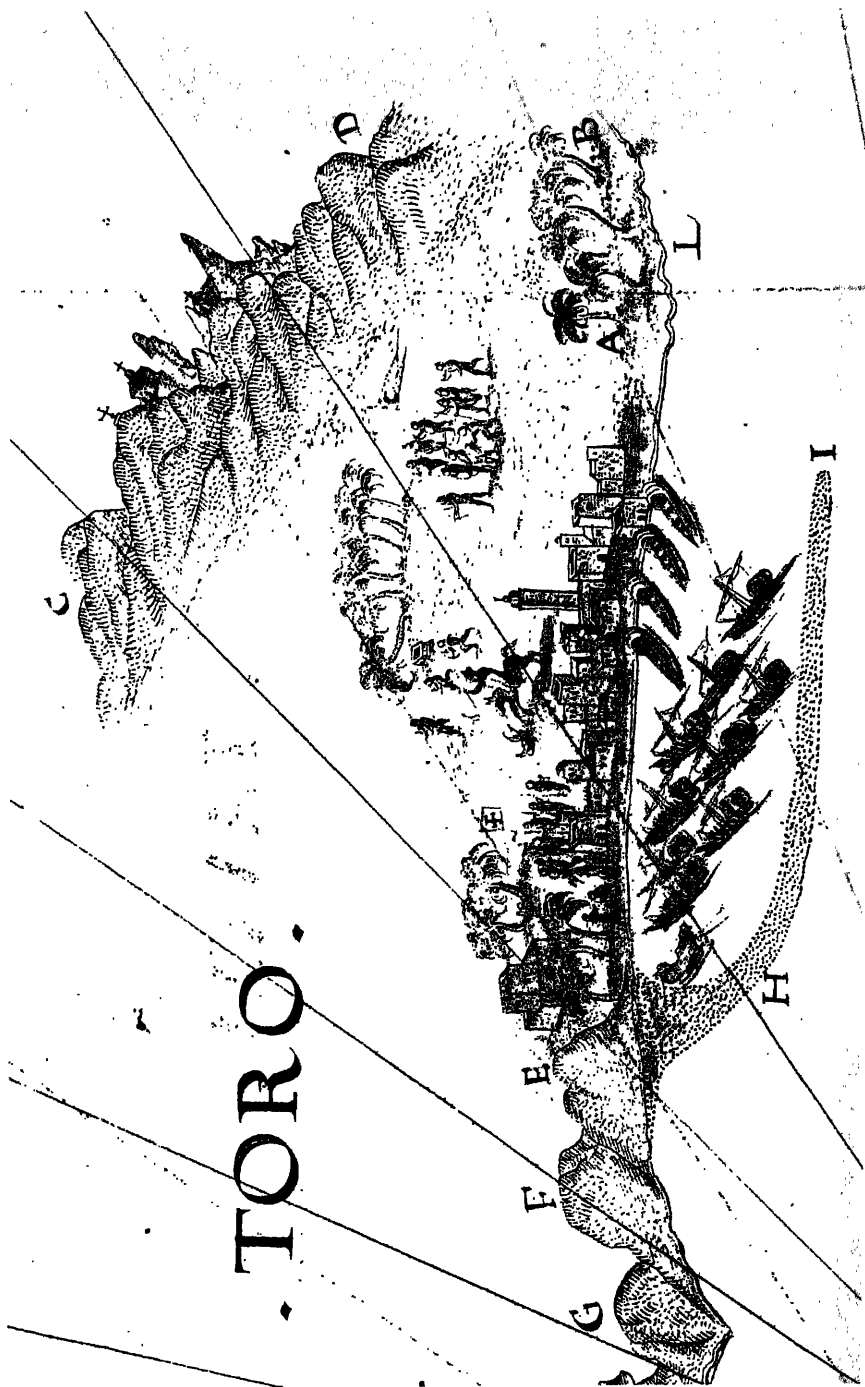
¹ Pacheco obviously means Hanno—cf. Prologue, p. 1.

² I.e. Cadiz.

³ It is more usual to equate the northern extremity of Jebel Musa, i.e. Leona Point, with Abila.

⁴ I.e. Ceuta.

TORO.



TYPICAL ILLUSTRATION FROM THE "ROTEIRO" OF DOM JOÃO DE CASTRO FROM INDIA TO SUEZ, 1541
British Museum, Cotton MS., Tib. D. IX

meat and many kinds of fish and in many other things worthy of much praise, begin, and it is $35\frac{1}{2}^{\circ}$ north of the Equator, the same number of degrees as the pole star is above the horizon¹. When the wind is in the east ships can shelter in Almina on the western side, where there is a shore which is called "O Porto d'el Rey²." They can anchor in twenty fathoms, half a league from land on a clean bottom; when the wind is in the west they can ride at anchor to the east behind Almina on an equally clean bottom.

Aqui mapa³.

Item. Since we have spoken of the two fair promontories, Abila in Africa and Calpe in Europe, it is reasonable that we should now speak of the great city of Cepta in Africa, situated five leagues from the town of Alcacere Ciguer⁴, which is outside the strait by the sea. All the country round Alcacere is wild and mountainous, and there are two high mountains rising from the sea; the one on the left to the east has an old half-ruined castle called Old Alcacere⁵; the other mountain to the west is called Sermil⁶. For greater clearness we here show Alcacere, with part of its environs, drawn from sight. The land is very rich and abounds in all the necessities of life. On another page we will speak of the very ancient and fortified city of Tanger⁷. Any ship having to anchor at Alcacere should look out [for the place] in the bay where we have painted a caravel; if it is a small ship it may anchor there and if a large one a little farther out.

Aqui mapa.

¹ Literally "the circle of the hemisphere." Actually Ceuta is $35^{\circ} 56' N$.

² I.e. Ensenada de la Almadra; *vide Mediterranean Pilot*, vol. I, p. 138 (4th edition).

³ Judging from the various contexts in which this phrase occurs, it may be construed to signify either sketch-map, chart or painting. Needless to say the words were inserted by the copyists to indicate the position of the "mapas" in the original manuscript. *Vide* Introduction, p. xxx.

⁴ I.e. El-Qsar es Sgir.

⁵ Cf. *Mediterranean Pilot*, vol. I, p. 101 (4th edition).

⁶ Mt San Simonito? *Vide Mediterranean Pilot*, vol. I, p. 101 (4th edition).

⁷ I.e. Tanger.

Chapter xiv

Concerning the routes, distinguishing features, soundings, tides and the degrees of the Pole Star above the horizon in going towards Guinea and India from Tanger.

As things worthy of remembrance ought not to be forgotten, it is fitting that we should record what we know of the very strong and ancient city of Tanger, which is five leagues from Alcacere outside the straits. In ancient times it was called Tingi, as Pliny says in the first chapter of the fifth book of his *Natural History*; this name many years later was changed to that of Tanger. We have placed here a picture of the city and of Cabo d'Espartel drawn from sight. In latitude Tanger is $35^{\circ} 15'$ north of the Equator¹. Pomponius Mela, a very ancient writer, in the first book of his cosmography² says that Tingi was built by the giant Anteus who fought with Hercules, and that on the outer wall hung a very large shield covered with elephant skin; it was too large to be used, but the inhabitants of this land believed that it was carried by Anteus in battle.

Item. Two leagues beyond Tanger is the promontory of Espartel, so that from Cepta to Espartel is twelve leagues; Ponta d'Almina lies ENE and WSW with respect to Espartel, and he who makes this voyage should keep two and a half leagues to the seaward of Espartel. At this point the tide flows during nine hours towards the Straits and ebbs for three hours, differing from the tides of which we spoke above³. The whole of the country along the coast from Cepta consists of very high mountains ending in Espartel, and the shore along this coast is so deep that ships can only anchor very close to the land. To the SSE of Espartel there is a very good anchorage, with protection from the east [wind], where one can anchor in fifteen, twenty, twenty-five and even thirty fathoms, and everywhere the bottom is clean

¹ Actually $35^{\circ} 49'$ N.

² *De Situ Orbis*, book I, chap. 5.

³ *Vide supra*, chap. 12.

and sandy¹. In a bay near this cape a tunny fishery has been established, in which many boats have taken part; this land is very fertile in everything and has many other fisheries besides that of tunnies which we have mentioned. *Aqui mapa.*

Item. Between Cabo d'Espartel and Recife d'Arzila, which, according to Pliny in the first chapter of the fifth book of his *Natural History*, was formerly called Liza², the coast runs north and south and occupies five leagues of the route. The country from Espartel along the sea is all low lying and has a clean bottom and³ . . . hidden rocks, so that it is everywhere possible to anchor with security. Arzila is 35° 50' north of the Equator⁴. The Recife d'Arzila should not be entered without a pilot or without making use of the marks which are set up in that neighbourhood⁵, to wit: two masts fixed in the ground within the channel by which ships should enter. For greater clearness we here show the city of Arzila with its reef, painted from sight, and in the painting a caravel is sailing to show the right entrance. Within the reef small ships up to thirty-five tons can anchor, but they should fasten their anchors [as a security] against the north-west wind, which blows obliquely and is accompanied by a great swell which is dangerous to shipping. All these four places, Cepta, Alcacere, Tanger and Arzila, belong to this kingdom of Portugal, and to its royal crown, for it is now about ninety years since Cepta was captured by force of arms from the Moors by King John I of glorious memory, your greatgrandfather; the other three were taken by King Afonso V, your uncle, forty-seven years ago⁶, for they waged fierce warfare against these enemies of our holy catholic faith, which your Highness ever spreads and increases by your many victories. *Aqui mapa.*

¹ I.e. Jeremias anchorage: "an open roadstead about 4 miles southward of C. Spartel . . . much resorted to by vessels prevented from entering the Straits of Gibraltar by strong easterly winds" (*Africa Pilot*, Part I, p. 139, 9th edition).

² Lissa in Pliny.

³ There is a lacuna in the text at this point. The context appears only to require some such negative qualification as "without" or "free from."

⁴ Actually 35° 28' N.

⁵ Text slightly corrupt.

⁶ Ceuta was taken in 1415, El-Qsar es Sgir in 1458, Tangier and Arzila in 1471. *Vide* Introduction, pp. xvi, xvii.

Chapter xv

Concerning the routes, distinguishing features, soundings and tides and the elevations of the Arctic Pole at and beyond Larache.

Item. If a ship leaves Arzila to go to Larache on a night so dark that the land cannot be seen, it should stand out to sea a good league from the reef [of Arzila] and steer SSW for three leagues from Arzila, when it will double Ponta das Barrocas. These Barrocas are lofty, white sea-cliffs; and all the country between Arzila and Larache consists of low hills which terminate in the aforesaid cliffs. Thence to the mouth of the Rio de Larache¹ is a distance of two leagues; in our time the entrance to this river is on the SW, very near a rock which has a rampart with two small towers, close to the river at the foot of the town of Larache. This is shown in the painting, made from sight, which we have placed here. The channel of this river has four and a half fathoms of water at high-tide, and the tide is northeast and southwest with an ebb and flow of six hours each, as in our Spain. This river can be recognised by the following landmarks: to the SW is a castle known as the Castle of the Genoese², so white as to have the appearance of a ship's sail; to the NE are the Barrocas, high and white, as we have said, and in a bay there is the mouth of the Rio de Larache. Those who ascend this river for the distance of one league will find on their left hand the ruined city of Xamez³, which formerly was a great and wealthy city. It is said that for forty years after the conquest of Spain

¹ I.e. Wad el Qus.

² In the Middle Ages this stretch of the Moroccan coast down to about Salé was the outlet for the thickly populated kingdom of Fez. Genoese, Pisan, Venetian and Catalan merchants came to buy the products brought by caravans from the interior. The Genoese seem to have been the most successful traders. As early as c. A.D. 1100 we hear of the republic of Genoa entering into a commercial treaty with the reigning monarch Abu-Yakub. Later Pisans, Catalonians, Aragonese entered into rivalry with the Genoese, but abandoned the contest ultimately. The castle referred to by Pacheco was presumably one of their fortified factories.

³ Epiphania Dias (*Esmeraldo de Situ Orbis*, edição crítica anotada, p. 52) is of the opinion that this town occupied the site of Pliny's Lixos—i.e. the modern Tchemmich.

by the Moors it held out against the Moors and was finally destroyed by them, as being a Christian city. A league seawards from the mouth of this river is a clean sandy bottom of twenty-five fathoms, affording safe anchorage for shipping; there is also good fishing in this river, and the surrounding country produces much corn, but in summer fever is rife. The latitude of the place is $36^{\circ} 10'$ north of the Equator¹. *Aqui mapa.*

Item. From the Rio de Larache to Halagunas² is five leagues, and these lagoons have an inlet within which there is a lake which only small vessels can enter; above it to the east is a round clump of cork-trees, which is the landmark for these lagoons. Five leagues beyond them is a fairly high hill called Fornilho³.

Item. Five leagues beyond Fornilho is the Rio da Mamora⁴. From Larache thither this coast lies N by E and S by W; those who make this voyage should keep very close to land and, if it is night, must steer SSW in order to navigate it safely. This Rio da Mamora has, on its south side, a very high dark grey cliff⁵, and within the entrance of the river to the east there is a thicket running all along another cliff. At the present time this river has two entrances; one of them lies northeast and southwest along a headland of sand, which as one enters should remain on one's right, three or four stones'-throws away; the other lies east and west along a dark grey-coloured cliff and has a depth of four and a half fathoms at high tide. The tide flows northeast and southwest, six hours ebb and six hours flow; small ships of thirty tons can go up this river six or seven leagues, but large vessels must remain lower down near its mouth. A league within the mouth of this river is an island with a plentiful supply of wood. Both this river and that of Larache are in summer time very rife with fever. At the mouth of this river, and also farther along, is a clean anchorage of thirty fathoms where ships may anchor safely, but they must guard against the northwest wind,

¹ Actually $35^{\circ} 12'$ N.

² These lagoons are in the vicinity of Old Mamora: *vide Africa Pilot*, Part I, p. 141.

³ Cf. *Africa Pilot*, Part I, p. 142.

⁴ I.e. Wadi Sbu.

⁵ It is some 456 ft. high and constitutes the landmark for the town of Mehediya: *vide Africa Pilot*, Part I, p. 142.

which blows obliquely to the shore. Small vessels can ascend this river to the city of Feez in winter¹. The country along this river is flat and supports many flocks and many orange groves.

Item. The Rio da Mamora and the river and town of Çalé² (of which we here give a painting from sight) lie northeast and southwest and occupy seven leagues of the route. This Rio de Çalé can be entered from the ESE side alongside a tower and it has a depth in its channel of a good two and a half fathoms at high tide, the tide flowing northeast and southwest; to the south it has another channel, and between these two channels stretches a very long line of reefs with sandbanks here and there on which the sea breaks with force. The landmark of this river is the very large and lofty tower of Çalé³, shaped as it is here painted; there is not another tower like it on all this coast. The city of Çalé is also large, but thinly peopled. The sea by this river affords clean good anchorage, and at a depth of fifty fathoms one is ten leagues from the shore. In Çalé there are three villages⁴—we show two of them in our drawing; they are situated on the said river, one of them being towards Themicinaa, where the Arabs of Enxouvia dwell, and this village is called Arravalde; the other is called Exale, which was formerly the burial place of the Kings of Feez, their other burial place being in Hell. From Mamora (where the other river—called Cebú⁵—which comes down from Feez

¹ The Wadi Sbu does not flow within 5 miles of Fez and is not navigable even for the smallest craft for more than 90 miles upstream. (Fez is approximately 250 miles from its mouth.)

² I.e. Wadi Bu Regreg and Sali (with which Rabat is incorporated).

³ I.e. Hassan Tower, situated at the eastern end of that town and built by the Emir, Yakub el Mansur. Leo Africanus has the following reference to it: "So exceeding is the height thereof, that I think there is no where the like building to be found: . . . from the top they [can] descry ships a huge way into the sea. . . ." (*History and Description of Africa*, book III, p. 401, Hakluyt Society). The tower still stands 180 ft. high after all these centuries.

⁴ On the north bank of the Wadi Bu Regreg was the town of old Sali (or Salé, Sella, Sallee). This was the great mediæval trading port of Morocco (*vide* Leo Africanus, *op. cit.* book III, p. 407). On the south bank and immediately opposite Sali was Rabat (Rebat in Leo Africanus), built by Yakub el Mansur in A.D. 1190. Also on the south bank, but "two miles from the ocean sea and a mile from Rebat" (Leo, *op. cit.* p. 403) stood the third of Pacheco's "villages," Shella (Sella in Leo), the "Sala Colonia" of the Romans. It was here that el Mansur and many other Almohades and Merinides were buried.

⁵ I.e. Wadi Sbu.

debouches) it is five leagues to the town of Çalé. All these three places are called by the one name Çalé. Ten leagues from there is a small river called Tifil Felti¹; eight leagues still further on is another river called Bety², and from Bety to the city of Feez is seven leagues. So that from Çalé to Feez is twenty-five leagues, and all this country abounds in corn, meat, fish, honey and many other good things. There are also very good horses, which are frequently brought to these kingdoms³. *Aquí mapa.*

Chapter xvi

Concerning the routes, landmarks, soundings, tides and elevations of the pole star from Almancora and Fedala and the country towards Guinea and India.

Item. The Rio de Çalé and town of Almancora lie NNE and SSW and occupy seven leagues of the route. It is said that this castle of Almancora⁴ was depopulated and destroyed by lions, for they devoured so many of its inhabitants that the few who were left fled and went to live elsewhere. From Almancora to the islands of Fedala⁵ is about a league, and the landmark of Fedala is two islets where small vessels up to eighty tons can anchor in four and five fathoms. The bottom is sandy and clean and the anchorage good, but those who stop here should make their anchors secure, because of the strong surge at this point. To any one making for this land from the sea these islands will not appear to be islands, but when approaching them from the NE,

¹ I.e. Wadi Telfil: cf. Leo, *op. cit.* p. 412.

² Marmol speaks of two rivers with similar names, Beht and Behet. They rose in the Atlas Mountains. *Vide Harris's Collection of Voyages and Travels*, vol. I, p. 314.

³ I.e. Portugal and Algarve. "These kingdoms" is the expression habitually used by Pacheco when speaking of his own country.

⁴ The site is now occupied by the small town of Mansuria.

⁵ I.e. Cape Fdala—"a projection formed by a chain of rocks, 16' to 50' high... The summit of the Cape is a little conical hill at the north extreme. From a distance the Cape has the appearance of an island" (*Africa Pilot*, Part I, p. 147).

one league off, they will be seen to be so. All this coast is a beach, and for clearer understanding we have set here a painting from sight of the town of Almancora (with a tree which serves as a landmark) and of the islands of Fedala. *Aqui mapa.*

Item. The town of Almancora and the islands of Fedala lie with respect to the bay of the city of Anifée¹ NE and SW, and occupy five leagues of the route; and all this stretch of coast consists of rocky cliffs, there being little beach, and has a dirty bottom. The landmark of the city of Anifée, which is drawn here from sight, is a great bay with a reef of rock close to the land; the reef has a narrow entrance on its NE side but on its SW side there is no entrance. Apart from this landmark the place can easily be recognised by the city itself with its great tower and by the country [inland], which is very flat and abounds in all necessary products. It is now some thirty-eight years² since the excellent Prince Fernando your father with a great fleet and army went in person against this city and entered it by force of arms and destroyed it and returned to these kingdoms with great honour and victory; this fall of Anifée came after another serious defeat received one hundred and sixty-five years ago³, when all the principal people of the city of Anifée were killed in the battle of Salado, which was fought between Gibaltar and Tarifa at a place called Pena do Cervo⁴. In this battle the excellent prince and magnanimous knight King Afonso IV of these kingdoms of Portugal, your great-great-great-grandfather, who lies buried in the cathedral of Lisbon, took part. He went to the assistance of his son-in-law, King Afonso XI of Castille, with a large army from these kingdoms when seven Moorish kings had invaded the realm of Castille in very great force and were taking his land from him. This most serene Prince helped the King of Castille to defend himself, for he was unable to hold his own against such a big enemy force. How great a service this most fortunate King rendered to God and what honour he won in this battle in the defence of His holy name and of the realm of Castille may be

¹ I.e. Casablanca Bay (*vide Africa Pilot*, p. 148). The town of that name now occupies the site of Anafé.

² The destruction of Anafé by Fernando took place in A.D. 1468.

³ The battle of Salado was fought in October A.D. 1340.

⁴ I.e. Peña del Cervo, 2 leagues from Tarifa.

read in his Chronicle. In this battle perished all the noble and honourable men of Anifée, as we have stated, and to this day the city has never recovered its prosperity. We could say many things of the former grandeur and prosperity of Anifée, but we would not be prolix.

Item. Leaving the bay of Anifée in the direction of the SW there is close by a cape called Cabo do Camelo¹; from here to Furna d'Acicor² is ten leagues, and all this coast is beach with a clean bottom, so it is possible to anchor securely at any point along it. This Furna d'Acicor has above it three hills of sand in the shape of pointed paps³ and also a fairly tall wood. To the NE of this cove and $\frac{1}{2}$ league seawards there is a reef of rock on which the sea breaks; these are the landmarks of the Furna d'Acicor. The coast here lies NE and SW. *Aqui mapa.*

Chapter xvii

Concerning the routes, landmarks, soundings, tides and elevations of the pole star from Anifée to Azamor and beyond.

Item. From the Furna d'Acicor, of which we have spoken above, to the river and town of Azamor⁴ are two leagues, and this coast lies NE and SW; opposite this river a league out to sea the bottom is all clean, being sand and mud, with 35 and 40 fathoms, and it is clean also at twelve and thirteen fathoms, but nearer to the land it is all dirty, with stone and rock which cut the hawsers. On the first sandbank of this river, a good league outside its mouth, there are at least four fathoms of water

¹ I.e. Table d'Aukasha.

² I.e. Azimur Point. The Scossor of the portolan charts?

³ Cf. *Africa Pilot*, Part I, p. 151.

⁴ I.e. Wadi Umm er Rbi'a, on the left bank of which is situated the town of Azimur.

at high tide¹. . . , there are two and a half fathoms of water. The sea does not break on this shoal, because there is a bank farther out which breaks it; passing within this latter sandbank close to the town of Azamor there are five to six fathoms of water. At the present time the channel of this river lies NW and SE and only accommodates small vessels. The tide flows NE and SW. Since the bar and channel of this river often change, the pilot who would enter it should take soundings at the bar or should take a local pilot in order to enter safely. The landmark of this river is that two leagues to the NE is the cape and cove of Acicor, which we mentioned in a former paragraph; he who sails a league beyond this cape in the direction of this river will reach the town of Azamor. Here there is marvellous shad fishing, the fish being very large and good; they pay tribute with these to your Highness². This town of Azamor and its neighbourhood produces a great abundance of corn, meat, fish and many other products; and to this town extends the first part of the kingdom of Feez. And now since we have said something of the places along the coast, it is fitting that we should tell where it begins and speak of some of the cities and towns of the interior and of the second part of the kingdom.

We will now speak of the kingdom of Feez. It begins at river called Meluya³, which divides it from the kingdom of Tremecem, and which lies ten leagues beyond Cabo d'Antre-fulcos⁴; from here to the mouth of the straits of Cepta is fifty leagues. Five leagues to the west of the Rio de Meluya is situated the town of Melilla⁵, which is on the frontier between Feez and Tremecem. Seven leagues west of Melilla is the town of Caçaça⁶, and twelve leagues west again is a town called Belez da Guomeira⁷. Thirty leagues beyond is situated the great city

¹ There is a lacuna in the text at this point. The context seems to require only the insertion of the words "on the second sandbank" to complete the sense.

² The town of Azimur was tributary to Portugal from 1468 to 1542.

³ I.e. River Muluya which forms part of the present-day boundary between Algeria and Morocco (cf. Leo Africanus, *op. cit.* book IX, p. 931).

⁴ I.e. Cap des Trois Fourches.

⁵ Called Millela in the portolan charts, e.g. Vesconte and Catalan Atlas.

⁶ The Chasasa of Leo Africanus, *vide History of Africa*, book III, p. 534.

⁷ The Bedis of Leo (*op. cit.* p. 517).

of Cepta; thence extends the whole coast of Cepta outside the Straits, with its rivers, bays, harbours, cities and towns as far as Azamor, as we have seen. In the interior is the great city of Feez, from which the kingdom derived its name; eight leagues beyond Feez is situated the city of Maquinez¹; farther on is another very good city called Teza². This constitutes the first part of the kingdom of Feez; we will now proceed to describe the second part and will follow the order of the coast from the Rio d'Azamor onwards.

The second part of the kingdom of Feez³ begins at the Rio d'Azamor, whence to the bay of Mazaguam is two leagues; this bay and the river lie NE and SW and occupy two leagues on the route. Here formerly was the city of Mazaguam, now totally destroyed⁴; this bay which is drawn here from sight affords good anchorage for large ships, but he who would anchor here⁵ should strengthen his cables, for the bottom is foul and, in places, there are rocks which cut the cables. It is here that the plains of Duquella⁶, extending for nearly forty leagues, begin; the country is very rich in corn and meat. In this bay of Mazaguam many ships of these realms and of Castille take in a cargo of wheat when for our sins God gives us none. These plains are peopled by a race of Moors called Xarquya⁷, who, it is said, number more than 40,000 horsemen but are all unarmed.

¹ The Mecnase of Leo (*op. cit.* p. 412), otherwise called Mekenés, Mequenez, Meknes. It was one of the three capitals of Morocco. In Pacheco's day the people of Mequenez were under the subjection of the King of Fez. Actually it is not *beyond* Fez, but to the seaward of it.

² The modern Tazza (or Tese) and not the Tefza of Leo and Marmol.

³ Cf. Leo, *loc. cit.* book I, p. 125 and book II, p. 283. At the time when Pacheco wrote the Empire of Morocco was in a state of political disintegration. The kingdom of Fez, ruled by Mulaï Said, was the effective power in the whole of the western Atlas region. In fact during the second decade of the sixteenth century the "king" of Morocco was a relation and vassal of the king of Fez. This state of affairs would account for Pacheco's extended application of the phrase "kingdom of Fez." *Vide infra*, pp. 56-7.

⁴ From this it seems that Pacheco was writing before 1506, for in that year the Portuguese built a fortified town on the site of the ruins.

⁵ Text slightly corrupt.

⁶ The Duccala of Leo Africanus (*op. cit.* book II, p. 283). Cereals still figure among the list of exports from this region, barley, wheat and maize being the most important.

⁷ Cf. Leo, *op. cit.* book IX, p. 990.

Item. The bay of Mazaguam and the town of Tyty¹ lie NE by E and SW by W and occupy two leagues of the route. About a half league or a little more before reaching Tyty is a bay of fair size, with room for ten or twelve small vessels and with a small ruined tower behind it. Tyty is distinguishable by a very high tower², and also by a small bay into which ships can sail in calm weather; however they should guard against the NW wind which blows across the bay and makes the sea very rough. Formerly this town of Tyty had a large population, but now it has only a fourth part of its former population; the country is very rich in corn, meat and fish. *Aqui mapa.*

Chapter xviii

Concerning the routes, soundings, landmarks and elevations of the pole star from Tyty to the country beyond, forming the second part of the kingdom of Feez.

Item. The town of Tyty and Casa do Cavaleiro³ lie ENE and WSW and are seven leagues apart. This Casa do Cavaleiro appears above⁴ in the sketch, which was drawn from sight. For landmark it has a large house on the top of a plateau, and on the shore there is a great reef which can be entered on the NE side near a small island. Inside there is a cove in which ships of eighty tons burden can ride at anchor, but they should have four hawsers (two at the prow and two at the stern) on account of the heavy ground swell; there is a clean bottom of seven and eight fathoms. At this Casa do Cavaleiro there is much wheat and barley and many ships take in a cargo of it; there is likewise

¹ Probably the Teturit of the Catalan maps. Leo speaks of it as Tit (*vide History of Africa*, book II, p. 288).

² "The ruins of Tit, situated about 3 miles NE of C. Blanco, consist mostly of the remains of a number of square towers" (*Africa Pilot*, Part I, p. 153).

³ El Waladieh? *Vide Africa Pilot*, Part I, p. 153.

⁴ From the context it would seem that there is a slight "lapsus" here, and that Pacheco wishes actually to refer to the "mapa" below.

an abundance of meat and game. Out at sea in fifty and sixty fathoms there is good pixotas¹ fishing, as well as many other kinds of fish; those who go there, however, should beware of the Arabs and take hostages, for they are very evil-disposed people.

Aqui mapa.

This is the Casa do Cavaleiro, which the Moors in their language call Ugueer², and to facilitate its identification we have given a painting of it here. The Casa do Cavaleiro and Cabo de Cantim lie east and west and occupy seven leagues of the route. He who sails for this cape should guard against a rocky shoal beneath the water at a little over half a league to the NW; this shoal is very dangerous and many ships have been lost there, and when the sea flows in it breaks on it. The landmarks of this Cabo de Cantim are that on its northern side the land projects above it in the shape of a hat, that at this point the coast turns south, and that its latitude is $33\frac{1}{2}^{\circ}$ north of the Equator³; these three facts serve as distinguishing features. He who leaves Cabo d'Espartel or Arzila to go to Cantim ought, on getting three leagues out to sea, to maintain a southwesterly course; by doing so he will keep outside the bay, for Cantim and Espartel lie NE and SW and occupy eighty-two leagues of the route. He who wishes to come in and anchor at the Casa do Cavaleiro should study this drawing, which shows the passage between the mainland and the islands. He should anchor inside [the reef] in eight fathoms⁴, using four hawsers, two from the prow and two from the stern.

Aqui mapa.

Item. The above-mentioned Cabo de Cantim and Ponta do Canaveal⁵ lie N by W and S by E and occupy five leagues of the route; at Ponta do Canaveal is a very good spring and its landmark is a high hill behind it. Ships often take in water there; but he who lands there should set a man to keep watch, for the Arabs when they see a Christian endeavour to kill him.

¹ Literally "little fish."

² The Benimegher Mountain of Leo Africanus? His description runs as follows: "Benimegher is distant from Azafi about 12 miles... this mountain is so exceedingly fruitful for oil and corn that a man would scarce believe it" (*History of Africa*, book II, p. 295).

³ Cape Kantim is actually $32^{\circ} 33' N$.

⁴ There is a lacuna here which cannot be filled with certainty. However, it does not appear to spoil the sense.

⁵ I.e. Cape Safi.

A little more than half a league beyond Ponta do Canaveal is the city of Çafy¹, which pays tribute to your Highness, and which is here portrayed. It is situated near the sea and all round about the coast is beach and inhospitable. If a vessel anchors off here it must beware of the west wind which blows across this harbour. This city of Çafy is rich in corn, meat and fish and has many good horses, which are obtained from the Arabs. Some of them are brought to these realms. Here also we find gold², which the Arabs bring by land from Guinea, hides of all kinds in abundance, honey and wax, as well as other merchandise, on which a good profit is made.

Thirty leagues beyond the city of Çafy inland is the great city of Marrocos³ with its twenty-four gates. In the days of its prosperity, so it is said, a thousand horsemen with their captain would go out by each gate. When the Moors conquered Spain in the year of Our Lord 719, they took from Sevilha and its churches ninety large bells, which to-day are kept in the tower of the principal mosque; they have no clappers but are preserved as a memorial. Eight of the gates are lined with bronze; these also came from Sevilha. Although this city is still very big and populous and one of the chief places of Africa, to-day it does not possess a thirtieth part of its former population, for most of its best men fell in the battle of Salado with those of Aniffee, as we stated above. We have read that St Augustine⁴ was a native of

¹ I.e. Safi (alternatively Saffee, Sefi, Saffi, Asafi, Azafi, Asafie, etc.). The Portuguese captured Safi in 1508 (*vide* E. Prestage, *Portuguese Pioneers*, p. 179), which hardly agrees with Pacheco's statement that it was paying tribute to the Portuguese at the time of his writing—presumably A.D. 1505–6. Leo Africanus (*op. cit.* book II, p. 288) says, however, that the Portuguese conquered the town "in the year of Hegira, 920"—i.e. in 920 plus 485(6) which is A.D. 1505–6. For a detailed history of Safi *vide* R. Brown's note on pp. 367 *et seq.* of vol. II of Leo Africanus's *History of Africa* (Hakluyt Society).

² Cadamosto confirms this, for he tells us that the gold of Melli was carried northwards along three different routes, one of which led from Timbuktu via Hoden (Pacheco's Audem) to Oran, Ona, Fez, Morocco, Arzila, Azafi and Messa (*vide* C. Schefer's edition of *Cadamosto's Voyages*, p. 63).

³ I.e. Morocco or Marrakesh.

⁴ Pacheco is confusing St Augustine with the patron saint of Morocco. St Augustine was a native of Tagaste, a town in Numidia, and was born in A.D. 354. Marrakesh was only founded in A.D. 1062. There was, however, some excuse for Pacheco's mistake, because in his day there was a monument in the town of Aghmat (the capital of the Almoravides before the founding of Marrakesh—lying to the south of that city) which the people affirmed to cover the grave of St Augustine, whom they called St Belabech (*vide* R. Brown, *op. cit.* p. 359).

this city and went thence to Italy, where he learnt Latin letters and the Latin language and by the grace of the Holy Ghost became a Christian.

Item. At twelve to fifteen leagues inland from Çafy towards Marrocos and also off the road [to Marrocos] are the following places: Almedina¹, Alhamiz², Bulanham³, Coeyta⁴ and Tedenez⁵, which of old was great but is now uninhabited. Having said this much, it now behoves us to keep to our purpose and return to Çafy and from there describe in order the other places along the sea-coast.

Aqui mapa.

Chapter xix

Concerning the routes, landmarks and degrees of elevation of the pole star above the horizon from Çafy and other places beyond.

Item. Çafy and the Rio dos Savees⁶ lie N and S, and occupy five leagues of the route. This river is very small, and only small boats can enter it; we will not therefore speak of its tides nor of its distance from the Equator. On the south side, acting as a landmark, is a high mountain range running from E to W and called the Ferrarias⁷; on the north side there is a single high

¹ Literally "the city." Every large town in Morocco has a "medinah" section. It is probable, however, that this town is to be identified with Leo's Alemadin (*vide History of Africa*, book II, pp. 299, 383-4).

² A lost city? "All over the region of Morocco... are scattered ruins of what seem to have been large towns or villages, the desertion or destruction of which is attributed to famines and epidemics, or to the vengeance of Sultans, powerful chiefs, and the 'Rume' or Christians" (R. Brown, *op. cit.* p. 335).

³ The Bulahuan of Leo and the Tabulawan of modern times. It is located on the south side of the Umm-er Rbi'a not far from Meshra Bu el Avan (*vide* R. Brown, *op. cit.* p. 377).

⁴ Another lost city?

⁵ Leo speaks of a Tednest, but this town was not destroyed until 1516.

⁶ I.e. Wadi Tensift, *vide Africa Pilot*, Part I, p. 156.

⁷ I.e. Jebel Hadid or the Iron Mountains, which extend some 20 miles behind the coast between Wadi Tensift and Hadid Point and attain an elevation of c. 2300 ft.

isolated mountain which comes down to the bank of the river and the sea breaks against it. The entrance to this river is between two rocks.

Item. The Rio dos Savees and the island of Moguador lie ENE and WSW, and occupy seven leagues of the route; this island is small, not larger than the Berlengas¹. It has two approaches, one on the NE and the other to the WSW, and from the mainland to this island is a good arrow shot. On the mainland and close to the sea there is plenty of fresh water flowing into the sea. Of these two approaches to this island harbour and anchorage the better is that on the NE, for the other is dirty and rocky, but a ship of a hundred tons can enter by the good approach; however it should make itself fast with anchor and hawser, the hawser being attached to the island. It will find six or seven fathoms here and a safe, clean bottom; but all around for a distance of half a league the bottom is dirty and rocky and any ship anchoring there will lose its anchor. This island is of a fair height² and on its northern coast it has a small but very lofty islet which has a ravine in the centre, into which the sea penetrates and upon which it breaks with a resounding roar. In the year of Our Lord 1506³ your Highness ordered a castle to be built on the mainland in this town of Moguador hard by the sea, called Castello Real. This was constructed and commanded by Dieguo d'Azambuja, a knight of your household and Commander of the Order of S. Bento da Comenda d'Alter Pedroso. He was greatly beset by the opposition and attacks of the barbarians and Arabs, who united to fight with all their might against the builders of the castle, but the castle was completed notwithstanding and the glory of victory rested with your Sacred Majesty. This and many other things that I might mention are objects of admiration, as is the conquest of the Indies, still more

¹ The archipelago of that name found off the west coast of Portugal in the neighbourhood of Cape Carvão.

² Mogador Island is not more than 100 ft. high but it is surrounded on almost all sides by islets that rise sharply from the water's edge. None of these, however, is "very lofty"—*vide Africa Pilot*, Part 1, p. 156.

³ This fort was erected by the Portuguese, not to hold the country but to protect their traders who called in there, and to keep up communication between Safi and Agadir. As Pacheco refers to the event in the past tense, it would seem that he was now writing *after* A.D. 1506.

so because it is your Majesty who has done this and many other excellent works.

Item. Castello Real and the island of Moguador lie N by E and S by W with respect to Cabo do Seem¹ and occupy five leagues of the route; from Moguador to this Cabo do Seem there are only rocky shoals, and although you can circumvent these shoals by going S by W, for greater safety you should sail SSW, and especially when navigating at night. This Cabo do Seem is narrow and low, and provides anchorage with shelter from the E to the NW on its south side; here in seven and eight fathoms, a gunshot from land, it is possible to drop anchor on to a clean bottom, but a large ship should anchor farther out to sea.

Item. Cabo do Seem and Tafetana² lie N and S and occupy three leagues of the route. Tafetana is a very large cliff of rock as high as Cabo de Sam Vincente, jutting into the sea. Behind it is a small creek which can give anchorage to fifteen or twenty vessels of sixty tons; he who enters this harbour should sail close to this cliff for at a distance of two stones' throws is a dangerous shoal where the sea breaks, but inside it ships can find very good clean anchorage—opposite a mosque—in seven fathoms. Thence by going two leagues in a N-S direction they will find another bay called Zebiliquy³, in which twelve or thirteen ships of sixty tons can anchor. There are six or seven fathoms of water here; moorings should be made with anchor and hawser. This bay is sheltered from NW to SE and its landmark is a white road which descends a very steep hill to the sea.

Item. The bay of Zebiliquy and Cabo de Guer⁴ lie NE by N and SW by S, and occupy eight leagues of the route. The signs by which you may identify this cape are a very high plateau like a table projecting over it, and the fact that the coast along it lies ESE and WNW. However, if a vessel wishes to sail from Cabo de Cantim to Cabo de Guer it ought to proceed SW by S for 20 leagues, that is to say as far as the island of Moguador, which

¹ I.e. Cape Sim, 31° 24' N.

² I.e. Cape Tafelneh, the Tefethne of Leo Africanus: *vide History of Africa*, book II, p. 243.

³ Imsouan Bay?

⁴ I.e. Cape Ghir.

will then be 5 leagues to the ESE; by sailing south for 24 leagues from here, it will arrive at Cabo de Guer. This is the exact route for those leaving Cantim for the said Cabo de Guer: in this way they will sail safely across the bay. Cabo de Guer is $31^{\circ} 25'$ north of the Equator¹. Behind the cape the coast follows an eastwest direction, and the whole of the country behind the cape is very mountainous: the mountains² are visible behind the cape from the open sea as one is approaching it, and also from inside it. There are three landmarks by which the cape may be readily recognised: the country we have described, the flat land which projects over the front of the cape in the shape of a table, and thirdly the fact that the coast trends in an east and west direction at this point. In addition to this there is the latitude of the place. He who is six leagues out to sea from Cabo de Guer will, in good weather, see the peaks of the Clear Mountains³: these are so lofty that they seem to touch the clouds. In this mountain-range is a very pointed peak which is lower than the others and which has on it a castle called Palma⁴. In this same range 2 leagues farther on from this castle is another one called Turucuco; 3 leagues beyond is another castle called Tucurumu; and 1 league farther on again is another castle called Taramate. Along this coast for 4 leagues to the SW⁵, there is good clean anchorage for ships at whatever number of fathoms they may wish. Here, too, there is an abundance of pixotas and many other kinds of fish. He who would anchor off Tamarate [*sic*] should come in close to land and make fast in 7 to 12 fathoms, for here, as well as further in, he will find a clean bottom and be able to moor in safety. Further out all the bottom is dirty as far as Augua de Narbaa.

¹ Actually $30^{\circ} 35'$ N.

² These are the heights of Idantenan, which form the western extremity of the Atlas Mountains and attain an elevation of more than 4000 ft.

³ I.e. the Atlas Mountains, *vide* chap. xxi.

⁴ In this part of the Atlas country castles or "ksars" (i.e. fortified villages) are very numerous. Leo Africanus speaks of three in the province of Cheneg (i.e. Southern Morocco) and it is possible that they are to be identified with those mentioned by Pacheco, although only one is named, viz. Tammaracrost (i.e. Tamarate?). *Vide History of Africa*, book vi, p. 781.

⁵ Southeast? *Vide Africa Pilot*, Part I, p. 160.

Chapter xx

*Concerning the routes, landmarks and latitudes
of places beyond Cabo de Guer.*

Item. Cabo de Guer and Auguoā de Narbaa¹ lie ESE and WNW and occupy ten leagues of the route. The landmark of Angra [sic] de Narbaa is a lofty hill behind it with some huts on top. Below on the shore is the castle of Santa Cruz², commanding the said bay, in which any large ship can find clean good anchorage at whatever depth it requires. It is a notable thing that your Highness should have ordered the construction of this fortress by Joham Lopez de Sequeira in a land of barbarians, enemies of our holy catholic faith, who came in countless multitudes to oppose its construction, and that the enterprise was directed and carried out by force of arms from the other side of the sea, 50 leagues from your Highness' realms, the opposition notwithstanding, according to your good and holy purpose. This fortress is situated by the sea, and it is easily recognised, because all the other castles in the vicinity of Cabo de Guer are on the mountains, while this castle, as we have said, is by the sea. This country is rich in corn, meat, fish, honey, wax, hides, and many other commodities which yield good profit. There is also gold, which the Moors bring from Guinea overland. For greater clearness we here give a painting of this fortress of Santa Cruz.

Item. The castle of Santa Cruz in the Auguoā de Narbaa

¹ I.e. Agadir Bay.

² I.e. Agadir. Leo Africanus calls it Gartguessem, probably the name of the native village (*vide History of Africa*, book 11, p. 253) before the Portuguese began to establish a foothold there towards the end of the fifteenth century. Santa Cruz did not long remain in their hands, however, for in 1536 the Sheriff Mulaī Mohammed el Arrani, aided by a Genoese renegade, besieged it with an army of, it is said, 50,000 men and, after a stout defence by the garrison, captured it by mining the walls with gunpowder. After this the place, under the name of Agadir, remained in the Sultan's hands and for many years was the entrepôt of an extensive trade with Timbuktu and the Sudan, the port being the best in Morocco and the natural outlet for the rich province of Sus.

and the Rio de Meca¹ lie NW and SE and occupy eight leagues of the route. There is a clean bottom as far as Tefinete², which is five leagues from the Auguo de Narbaa. From this point to Meca it is dirty, and all along this coast there is beach. Opposite Meca a league and a half out at sea it is shallow, there being places where the depth is not more than two or three fathoms. When the wind is blowing strongly from the N or NE all these shallows break into foam, so that ships going to this land always anchor two leagues from the shore, and if it be a large ship even farther out. A wise pilot will always anchor in the offing for the safety of his ship. Half a league before reaching Rio de Meca there is a mosque on a slope rather more than a gunshot from the sea; from there to the landing-place of Meca is two leagues on the same NW and SE route from Auguo de Narbaa. As soon as you get opposite the shore of the said landing-place you will see a road leading to a ruined house; this resembles a limekiln and is nearly half a league distant from the sea on a plateau. Small vessels of twenty to twenty-five tons can anchor there in a creek in twenty fathoms on a clean bottom; they should use both anchor and hawser and should neither pass beyond this road nor yet stop short of it, for the anchorage is at this exact spot.

In Meca³ there are three villages inland about one league from the sea; all three have the name of Meca and are fairly prosperous. Here is the boundary of the second part of the kingdom of Feez⁴, which begins at the Rio de Meluya fifty leagues within the Straits beyond the city of Cepta; for this river divides Feez from the kingdom of Tremecem, as we have said in the second paragraph of the seventeenth chapter of this book. From this same Rio de Meluya along the coast to the town of Azamor is 130 leagues, and this forms the first part of the kingdom of Feez; from Azamor to Meca is the second part, with eighty leagues of coast. All told therefore, Feez has 210 leagues of coastline. It

¹ I.e. Wadi Mesa.

² Suwanieh? 9 miles south of Agadir. The *Africa Pilot* speaks of a change in the character of the coast at this point which might easily be productive of "a dirty bottom" (Part I, p. 162).

³ I.e. Mesa, Messa or Massat; cf. Leo Africanus, *op. cit.* book II, pp. 248, 341. The *Africa Pilot* speaks of two villages in this vicinity (Part I, p. 162).

⁴ *Vide supra*, p. 47.

is a country rich in corn and meat and other products, while its seas abound in fish. The King of Feez is able to take the field with 100,000 horsemen. As for the merchandise of this realm, there is an abundance of wheat and barley, honey, wax, dates, indigo, hides, skins and many good horses, with other articles of great value which are daily purchased and brought to these realms. The products of our country which are valued in the kingdom of Feez are silver and red, blue, green, purple and yellow cloths; the finer they are the more they are prized. They also buy Dutch linens, fine handkerchiefs and other coarser ones, which they call "bordateis." All kinds of arms and tools they would willingly buy, for they have great lack of them; but since it is forbidden by the Holy Fathers in Rome and by the laws of your kingdom to sell arms to infidels, no one dares do this. What we have said is a summary of the kingdom of Feez, its might and the character of its products. The fortune of its people is to believe in the error of the sect of Mahomet who, they consider, was truly a messenger of God sent to this ignorant people for the remission of their sins; but he taught them all the vices and abuses of the body and nothing at all of virtue, for his primary intention was to destroy all that is difficult to believe or irksome to perform. In his complacency he granted them those things to which vicious and miserable men are inclined, especially in Arabia, where Mahomet was born, for its inhabitants make lust and greed and rapine their continual pursuit. As these perverse people are hostile to our holy Catholic faith, the kings of these realms from the time of King John of glorious memory have always waged war unsparingly against them and have captured the four towns which I mentioned in the third paragraph of the fourteenth chapter of this book.

Chapter xxi

*Concerning the Clear Mountains and their excellence
and the fabled Mount Atlas.*

As we have undertaken to describe the noteworthy and memorable things of Africa, it is right that we should not omit the Clear Mountains, situated near the harbour of Meca, for there are few countries in the world of equal beauty and height, so that they must be accounted one of the noble sights of Africa¹. They are situated in the interior some ten leagues from Meca, and the Moors in their language call them Gibel². It is said that Rodrigo, King of Spain, reigned over the country from the Straits of Cepta to these mountains, all this country being then inhabited by Christians, and he entitled himself Lord of the Clear Mountains. They yield much corn, fruit, honey, wax, and raisins and much iron, copper, hides and good fresh water and much other profitable merchandise which the inhabitants of these mountains take to the port of Meca to sell. Particularly noteworthy are the size and height of these mountains; for a very considerable distance eastwards along the coast of Africa they are so lofty that they seem to be above the clouds. In this country there is a race of people numbering about thirty thousand (including five or six thousand horsemen) who are warlike, but who, in some respects, seem to observe part of the Christian faith³, for they keep Sunday very strictly, doing no work on that day, and if any of their enemies go among them on a Sunday they will welcome him and do him no injury. Some of these men came to the city of Çafy and spoke with Ruy Fernandez,

¹ Cf. Leo's description of the mountains of Demenfera (*op. cit.* book II, p. 246) and Hanchisa (*ibid.* p. 256).

² Literally "mountain."

³ Leo refers to the survival of certain Christian practices in his description of the people of Fez (*op. cit.* book III, p. 452); cf. Marmol's description of a tribe called Azuagues living on the mountains and hills of Barbary and Numidia (quoted in J. Harris, *Collection of Voyages and Travels*, vol. I, p. 629). Le Clercq in his *L'Afrique Chrétienne* tells us that "au xiv^e siècle, dans les villages des Nefzaona, on rencontrait quelques communautés chrétiennes, qui s'étaient maintenant depuis la conquête" (vol. II, p. 323).

who at that time was there as the commercial agent of your Highness, and told him their way of life and belief, saying that their ancestors were Christians and that they possessed many ancient books left by them written in Latin, which they kept for the memory and honour of their race. This and other information concerning the range of the Clear Mountains we thought well to set down in this work; we will further add what is said by Pliny in the first chapter of the fifth book of his *Natural History* and by Ptolemy¹ in his work *De Situ Orbis* and by other authors, who stated that Mount Atlas is situated here, a single mountain so high that it overtops the clouds, and told many fables concerning it; but as the ancient writers did not know of this region or explore it as we have explored it, it is no wonder that they fell into error, for a mountain of such a shape is not to be found in all that region, but only the very high mountain-range of the Clear Mountains which traverse a great part of the length of Africa, as we have said above. It seems therefore that these must be Mount Atlas, although they are very unlike the shape and description of Mount Atlas given by the ancient writers. And now we must resume our description of the places and harbours along the sea-coast.

Item. The Praya de Meca and Cabo d'Aguiloo² lie ENE and WSW and occupy five leagues of the route, and this Cabo d'Aguiloo presents a massive front to the sea, for it has rising above it a mountain reminiscent of the hump of a camel; the cape falls to the sea like the cliff of Cabo de Sam Vincente and behind its point there is a bay. Half a league inside the bay in the interior is the village of Aguiloo with about 300 inhabitants; it has an abundance of good water and orchards, fruit and other produce, and also a fair amount of gold which the Moors bring thither from Guinea³. Small vessels up to eighty tons can anchor in this bay, but as the bottom is dirty they must take soundings.

¹ Pacheco obviously intended to write Pomponius Mela here (*vide De Situ Orbis*, book III, chap. 11).

² I.e. Cape Agula. The "mountain" is actually a range of mountains, some 2000 ft. in elevation, lying a considerable distance inland (*vide Africa Pilot*, Part I, p. 162).

³ Cadamosto does not list Aguiloo among the Moorish entrepôts for the Guinea gold traffic. It was, however, close enough to Massat to have shared its trans-Saharan traffic in that commodity.

Item. Cabo d'Aguiloo and Cabo de Nam¹ lie NE by N and SW by S and occupy twelve leagues of the route; Cabo de Nam is largely sand and is not very high. In front of it there are two islands, and two leagues inland is a very large mud-wall enclosure, five leagues in circumference; inside it are four villages: Taguast, Haguost, Hahytemosy and Tyciguone², containing in all some fifteen hundred inhabitants, who are usually at war with one another. Within this enclosure there is plenty of water and many gardens and orchards, with an abundance of fruit. The inhabitants of these villages are white, but there are some blacks among them. There is a big gold market here, for it is the port for Audem³. Here "alquices⁴," coarse handkerchiefs, and blue, red and yellow cloths are much prized, likewise English cloths, linens and other articles. It was from Cabo de Nam that the virtuous Prince Henry began his discoveries. At the beginning of this navigation there was a saying: "He who reaches Cabo de Nam will return or will not" (although it is distant not more than 200 leagues from Lisbon) and now—Our Lord be praised—the King navigates as far as India, a distance of 4,000 leagues from Portugal. He who wishes to sail from Cabo de Guer to Cabo de Nam⁵. . . and the distance along the route is 30 leagues⁶; by going outside the bay, he will make his way more quickly and safely. This Cabo de Nam is 30° 20' north of the equator⁷.

¹ I.e. Cape Nun.

² Cf. Leo Africanus's account: "In all Sus there is no city comparable unto that which is commonly called Taguast, for it containeth above 8,000 households. . . . The people of Taguast are divided into three parts [Haguost, Hahytemosy and Tyciguone?]. They have continual civil wars among themselves. . . . their men are of a tawny and swarthy colour, by reason they are descended of black fathers and white mothers. . . ." (*op. cit.* book II, p. 255).

³ There is no reference in contemporary literature to any gold traffic at Taguast. The port for Audem was Messa. (*Vide* Cadamosto, *op. cit.* p. 63.)

⁴ A kind of white Moorish mantle or burnous.

⁵ Lacuna.

⁶ The *coastwise* distance between these two capes, on Pacheco's reckoning, is 35 leagues. In the light of this (and the statement that follows it) it is obvious therefore that the lacuna originally contained directions for a shorter route between these points.

⁷ Actually 29° 20' N.

Chapter xxii

How God revealed to the virtuous Prince Henry that he should discover the Ethiopias of Guinea, and how his discoveries began at this point.

It is not reasonable that we should pass over in silence those things the truth of which our heart desires to tell: how the virtuous Prince Henry, third son of King John I of Portugal of glorious memory, and of Queen Philip daughter of the excellent prince Duke of Lancaster of England, in his youth took part with the King his father in the conquest of the city of Cepta, which was entered by the gate of Almina after a sharp battle with the Moors. The Prince there showed a courage equalled by no knight in this battle, as we heard from persons who were present at the capture of this city and bore true witness to this fact. For this he attained the high military rank due to brave men for such deeds¹. Some years after the capture of Cepta, after the death of the King his father, he founded and built on Cabo de Sam Vincente (known of old as the Sacred Promontory) the town of Terça Naval², situated on the bay of Sagres³, and withdrew there with his household from the woes and wickedness of this world, and lived a virtuous and chaste life, without ever knowing a woman or drinking wine or indulging in any other vice. He wore a hairshirt continually next to his skin and practised many other virtuous acts besides. He was at that time Master of the Order of Christ in these realms and lived such a good life that we may confidently believe that he was found worthy of that blessedness which all desire but few attain. We might say much more of this Prince and of his goodness,

¹ I.e. knighthood.

² The precise year in which Henry took up his residence in this town is a matter of dispute. R. H. Major (*Prince Henry the Navigator*, pp. 51-2) held that he did so soon after his return from Ceuta, but if we are to believe Zurara (*Chronicle of Guinea*, chap. 78) it would seem very unlikely that Henry withdrew thither until after his return from Tangier, i.e. after 1437. Pacheco's statement tends to confirm this, for John I only died in 1433.

³ Only ruins remain to mark the site.

liberality and learning, all of which deserve high praise, but we will omit these things as not pertaining to our subject. We will only tell of the cause¹ which moved him to undertake the discovery of the Ethiopias of Guinea², which is our principal theme.

Virtuous men who love God and have clean hearts and hate iniquity are never abandoned by the grace of the Holy Spirit; one night, as the Prince lay in bed, it was revealed to him that he would render a great service to Our Lord by the discovery of the said Ethiopias, and that in this region a great multitude of new peoples and black men would be found; as, in fact, have been discovered from that time to our day; whose colour and shape and way of life none who had not seen them could believe; and that many of these peoples would be saved by the sacrament of Holy Baptism. It was further revealed to him that in these lands so much gold and other rich merchandise would be found as would maintain the King and people of these realms of Portugal in plenty and would enable them to wage war on the enemies of our holy Catholic faith. This revelation and the discovery of so many great regions now made known to Christendom seems to be a fresh mystery of God and no merely temporal matter; for that must needs come to pass which was foretold by the prophet David in the eighteenth³ psalm which begins "The heavens declare the glory of God" and contains the verse "Their line is gone out through all the earth, and their words to the end of the world." And because the teaching of Our Lord, which was preached by the Apostles, for the salvation of the whole world, was lost in these Ethiopias, He in His infinite mercy and goodness willed that it should be restored by us as heirs of his law and divine faith. Thus in the city of

¹ The account of the revelation that follows is also found in João de Barros's *Asia*, Decade I, book I, chap. 2. Damião de Goes, a humanist of the Renaissance, refers to the story (*Cronica de Principe D. João*) but rejects it. According to him Henry desired to find India: the accounts of Herodotus and other ancient writers convinced him that it had been reached by the circumnavigation of Africa, and this, together with the information he had obtained from natives well versed in African affairs, led him to order the rediscovery of the forgotten route. *Vide* E. Prestage, *op. cit.* pp. 31 *et seq.* Zurara, who wrote nearer the time, simply gives a list of motives actuating Henry (*op. cit.* chap. 16).

² In contradistinction to "the Ethiopias of India"; *vide* book I, chap. 23.

³ Actually Psalm xix. 4.

Sam Jorze da Mina in the kingdom of Maniconguo¹ many Ethiopians have yielded a new spiritual fruit and in the time of the late King John and during your reign have become Christians and have hearkened to the Gospel which is spreading throughout the earth, so that the words of this psalm are being fulfilled. We must call Prince Henry, whom the glorious God chose for this fulfilment, most blessed; and blessed, indeed, are the Kings of Portugal his successors, who have won such glory, riches and honour from these conquests and commerce, with peace and prosperity, so long as they make use of them with charity and without harshness for the service of Our Lord.

The Prince began this discovery for the service of God from Cabo de Nam and when the first negroes² were brought to these realms and he learnt the truth of this holy revelation, he wrote to all the Kings of Christendom inviting them to assist him in this discovery and conquest for the service of Our Lord, each of them to have an equal share of the profits, but they, considering it to be of no account, refused and renounced their rights³. The Prince then sent to the holy Father, Pope Eugene IV,

¹ John Pory (*vide* Introduction to Leo Africanus's *History of Africa*, Hakluyt Society, p. 79) places it in the kingdom of Benin, the kingdom of the Congo ending northwards near the "haven called Gurte" (i.e. Gwato), about 30 miles northnortheast of the mouth of the Benin River.

² According to Zurara (*op. cit.* chap. 31) Dinis Diaz brought the first "negroes" to Portugal. They were "Azenegues of Sahara," i.e. blackamoors, but judging from passages in chaps. 27 and 33 of book 1, Pacheco has in mind the negroes of the Senegal, i.e. Jalofs. The first of these were brought to Portugal in 1447-8. (*Vide* Zurara, *op. cit.* chap. 60.)

³ This statement is not confirmed by other Portuguese historians and is, moreover, difficult to reconcile with the Papal mandates (issued at the express wish of the Portuguese kings) conceding the sole rights and advantages of African navigation to the Portuguese. The only passage in Zurara that deals with "the Kings of Christendom" has an entirely different tenor. After rehearsing the virtues of the navigator, he asks "Who would not fear to compare himself with this our prince, seeing how that the sovereign pontiff, vicar-general of the Holy Church (Martin X) and the Emperor of Germany (Sigismund) as well as the kings of Castille (John II) and England (Henry VI) when informed of his great virtues, begged him to be captain of their armies?" (*op. cit.* chap. 6). That still other Christian princes and rulers were also aware of the work of the Portuguese at this period, and unlikely to despise any request for help, is evident from the warm reception that Pedro, the second son of John I and brother of the Navigator, received on his tour of Europe. At Venice, for instance, the Doge presented him with a copy of Marco Polo's travels and a "mappa mundi" by which Prince Henry "was much helped

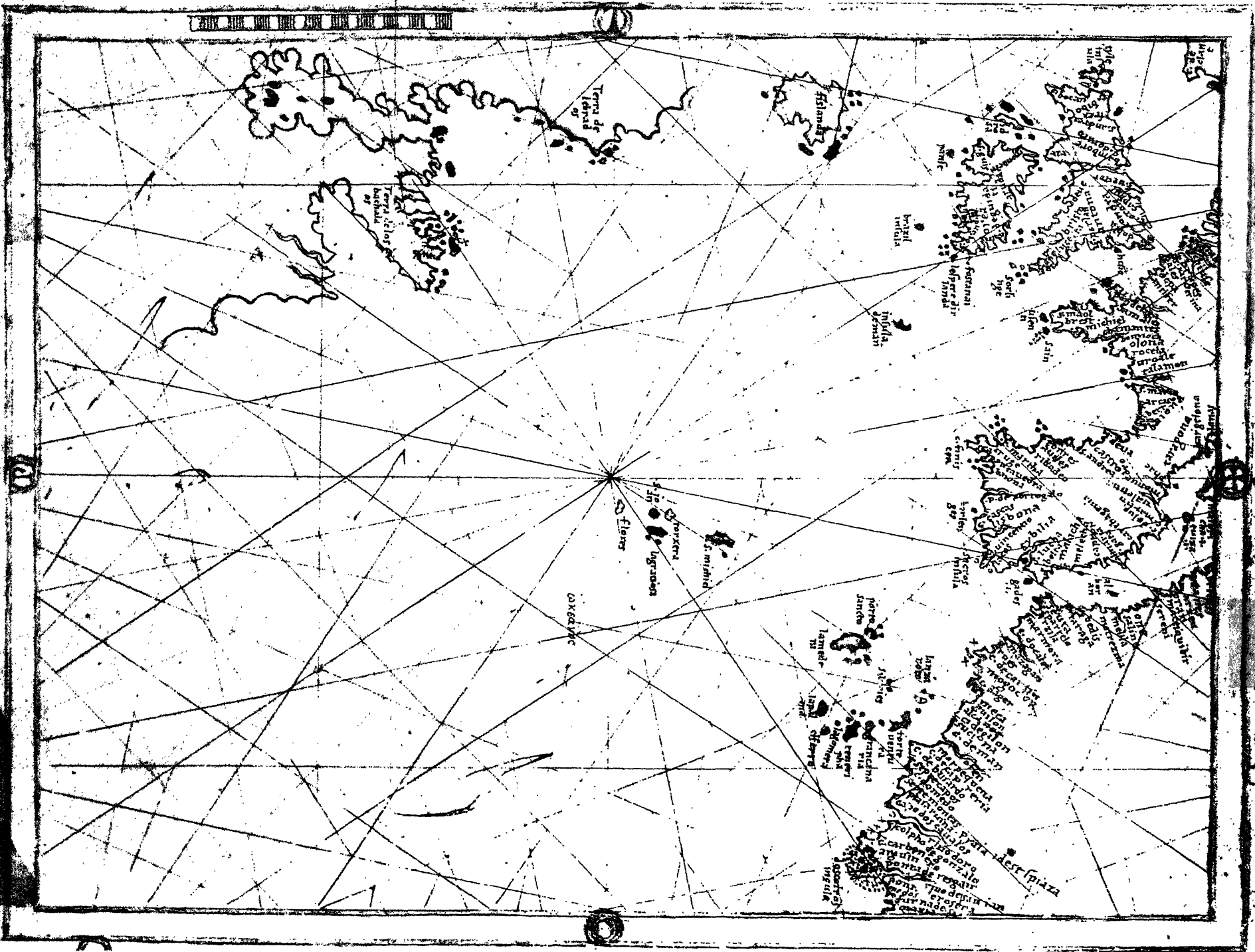
Fernam Lopez de Azevedo, a gentleman of his household and a councillor of King Afonso V, and Commander of the Order of Christ, who presented to the Pontiff the embassy of the prince and the renunciation of the kings, and all his requests were granted¹. For even as God revealed to the virtuous Prince this marvellous mystery which had been withheld from all the other generations of Christendom, so He willed that, by the hand of His vicar, pastor and father of the church, Pope Eugene IV, and by the blessings and letters of other holy Popes, the conquest and commerce of these regions even to the ends of India should be granted and bestowed on him. With this foundation this virtuous Prince set to work and bequeathed in perpetuity to the Order of Christ a tenth of all profits and revenues accruing from the islands of Madeira and the Azores and Santiago, and a twentieth of all profits from Guinea², in payment and return for certain revenues of the Order which he as its Master spent in the discovery of these lands and islands; and this twentieth part could not be refused, denied or in any way withheld without mortal sin and forfeit. This virtuous prince died on the 13th of November in the year of Our Lord Jesus Christ 1460, and lies buried in the monastery of Santa Maria da Vitoria da Batalha in the chapel of King John his father.

And now beginning at Cabo de Nam, which, as it was the beginning of this discovery, we thought right to honour with a special kind of mention, we will proceed with our purpose as before; and because it is fitting that such princes should be had in remembrance, we have placed here a painting of his

and furthered in his discoveries" (*vide* Antonio Galvão, *Discoveries of the World*, p. 66, Hakluyt Society). In the light of such evidence it would appear highly improbable that *all* the kings of Christendom should have considered such an invitation to be "of no account."

¹ Cf. Zurara (*op. cit.* chap. 15) according to whom this embassy sought to make a partition between the Pope and Henry "of the treasures of the Holy Church, for the salvation of those souls who in the toils of that conquest should meet their end."

² Up to the last year or so of his life Prince Henry paid the tithe of the revenues, both of the islands and Guinea, to the Order of Christ. On 26 December 1458, however, he signed a decree stipulating that the Order should receive tribute of the twentieth of all merchandise from the mainland, whether slaves, gold or whatsoever it might be, and that the remainder should fall to whosoever held the dominion, as he then held it, by royal prerogative.



British Museum, Egerton MS. 2803

device, with his motto as he used it, written in the French language¹.

Aqui mapa.

Item. Cabo de Nam and Cabo do Bojador lie NE by E and SW by W and occupy sixty leagues on the route; but a wise pilot will steer WSW for thirty leagues of this voyage and the other thirty SW by W and will thus round Bojador eight leagues out at sea; he should not take any other course, because Cabo do Bojador is most dangerous, as a reef of rock runs out into the sea more than four or five leagues, on which several ships have already been lost through ignorance. This Cape is very low and covered with sand; the bottom is so full of shoals that when you are in ten fathoms you cannot see the land² because it is so low. The whole of the coast from Cabo de Nam to Cabo do Bojador is low and sandy and almost deserted, and Cabo do Bojador is 27° 10' north of the Equator³. The knights of Prince Henry's household, whom he sent out as captains of his ships to discover this Cabo do Bojador, and likewise the seamen who accompanied them, ought certainly to be blamed for not daring to pass beyond it; for during twelve years they were sent out yearly⁴ by the Prince and when they approached Cabo do Bojador and found shallows and only three fathoms of water a league from land, they were so terrified by the strong currents⁵ that

¹ His motto "Talent de bien faire" could hardly have been more appropriate, for in Prince Henry's time the word "talent" conveyed not the idea of "power" or "faculty", but of "desire": *vide* R. H. Major (*op. cit.*) for an illustration of his device.

² It is the surf caused by the shoals, rather than the shoals themselves, that makes it difficult to distinguish the cape from the offing (*vide Africa Pilot*, Part I, p. 169).

³ Actually 26° 07' N.

⁴ From a letter of Afonso (22 October 1443, *vide Alguns Documentos do Archivo Nacional... Acerca das Navegações e Conquistas Portuguezas*, p. 8) we learn that Prince Henry sent out ships fourteen times before he got news of the land beyond Cape Bojador.

⁵ There is no suggestion in the *Africa Pilot* of dangerous currents at this point—"off C. Bojador the current pursues its steady course uninfluenced by any change in the direction of the wind and flows at less than one knot an hour, and at 4 miles WNW of the Cape sets SW at 1½ knots an hour" (Part I, p. 43). There is, however, a suggestion that the cape lacks suitable anchorage and shelter from storm—considerations that would loom large in the mind of the Portuguese pioneer. "The surf is exceedingly heavy all along this coast... landing on the south side [of the cape] is always difficult." But these conditions improve southwards: "from Cape Bojador the coast... trends SSE for a few

none dared to sail out to sea and pass beyond this shoal. Accordingly they returned to the coast of Berbery and Graada¹, where they cruised about to take some prizes in order to pay for the expense of their equipment; but the Prince was greatly displeased because they did not pass beyond the cape. In his desire to pass Cabo do Bojador and explore the coast beyond it, in the year 1434² he equipped a vessel [barcha] and sent in it as captain a squire of his household called Gilliannes, to whom he spoke as follows: "Gilliannes, you know how I brought you up from a boy and how I trust you in matters pertaining to my service; therefore I have chosen you out from all the rest to command this vessel and to discover and pass beyond Cabo do Bojador, and even if on this voyage you do no more than pass beyond this cape, I will consider that you have rendered a good service. The dangers you will encounter will not be so great that the hope of the reward I will give you will not be much greater." The Prince added: "I do not know how you have all imagined so vain a thing, for if it had the slightest foundation I would not blame you so much, but you tell me only the opinions of four seamen³ who make the voyage to Flanders and back and to other ports to which they are accustomed to navigate and have no other experience; but do you go and have no fear and pass beyond the cape and win great honour and profit⁴." These

miles, thus forming a bay affording some protection from northerly and easterly winds." Here "there is good anchorage... on a bottom of sand and mud." (*Africa Pilot*, pp. 279-81, 8th edition.) Now an examination of the early portolan charts (down to c. A.D. 1450) elicits the fact that it was not the *cape* which constituted the southern limit of coastal knowledge, but the *cove* on its southern side, from which it follows that the question of danger in rounding the cape was not regarded as a very serious obstacle to southward advance. It may well be that the real reason why Cape Bojador (literally, the bulging cape) earned the name of "caput finis Africe" in the later Middle Ages lies in the arid and inhospitable character of the coast beyond (cf. Zurara, *op. cit.* chap. 8, p. 31, Hakluyt Society).

¹ I.e. Granada. At the time of which Pacheco speaks Granada was still a Moslem kingdom (as indeed it remained until 1492) and the whole of the Barbary coast was under Moorish rule. Together these coasts provided a very handy and lucrative rendezvous for Portuguese pirates.

² In 1433 according to the generally accepted chronology (*vide* E. Prestage, *op. cit.* p. 55).

³ E. Dias (*op. cit.*) suspects a corruption of the text here, but the sense of the copies is apparent.

⁴ Cf. Zurara, *op. cit.* chap. 9.

words so impressed Gilliannes that he forgot all his fears and inspired by a great desire to serve the Prince, he in this year 1434 sailed fifty leagues beyond Cabo do Bojador¹. On his return the Prince knighted him and rewarded him appropriately and with great honour and possessions established him in the town of Lagos, where he lived many years. This Gilliannes was the first to pass two leagues beyond Cabo do Bojador and therefore deserves this notice.

Item. Cabo do Bojador and Angra² dos Ruivos lie N by E and S by W and occupy thirty leagues of the route. Whoever makes this voyage should keep close to the shore and sail cautiously so as not to run aground; but the ship that is seven leagues out at sea from Cabo do Bojador and sails S by W, will make the Angra dos Ruivos and be at safety a distance of three leagues, a little more or less out at sea from it. At Bojador the pilot will have to stand out to sea the aforesaid seven leagues in order to make the voyage safely. Now we will resume the routes and voyages from the city of Lisbon to these parts according to our customary manner of navigation.

Chapter xxiii

How we are accustomed to navigate to these Ethiopias of Guinea from the city of Lisbon.

From the province of Lusitania in the realms of Portugal, where is situated the very ancient and excellent city of Lisbon, the capital of our country, in which I the author Duarte Pacheco was born, by command and permission of the most serene Prince King Manuel our Lord (the first of his name to reign in Portugal) we are wont to sail in his fleet and ships to the Lower

¹ Barros (*op. cit.* Decade 1, book 1, chap. 5) gives 30 leagues and implies that these leagues were discovered on a second voyage in company with Gonçalves Baldaya in the year 1434, his first voyage (1433, according to Barros) having resulted only in the rounding of the cape.

² I.e. Garnet Bay. "Ruivos" can be translated equally well as "mullet," "gurnet" (whence garnet) or "roach."

Ethiopias of Guinea and to the Higher, as the most wealthy kingdoms of India are called; in this we excel all other generations. Because this work of ours began at the mouth of the western strait, where Pliny, Pomponius Mela and other writers began their cosmographical descriptions, we are following their order; our route thence to Angra dos Ruivos has been almost entirely coastwise, in order to preserve continuity of treatment. By this route, however, the journey to the said parts is long and circuitous; we must therefore describe the direct route which we are wont to take in all months of the year from this excellent city to the Ethiopias, which will be seen to be much shorter than following the sea-coast from the strait, as described above. After leaving this noble city of Lisbon you must steer SSW 200 leagues, when your latitude will be 28° north. Then sailing S by W for 45 leagues from Ponta d'Andia¹ in the Isle of Forte Ventura, which is one of the seven islands of the Canaries, you will come to Angra dos Ruivos on the mainland, of which we have spoken in the preceding chapter. This bay is 25° north of the Equator. Three leagues out at sea from this bay there is fifty fathoms of water with a sandy bottom and plentiful fishing; from this place you will sail along the coast in search of Cabo Verde, as we will go on to show.

Item. Angra dos Ruivos and Angra dos Cavallos² lie NNE and SSW and occupy twelve leagues; the name of the latter is derived from the fact that Prince Henry sent thither as captains Afonso Gonçalves Baldaya and the aforesaid Gilliannes with horsemen to capture some Moors; this place is difficult to find and can only be known from its place on the map.

Item. Angra dos Cavallos and the Rio do Ouro lie NE by N and SW by S and occupy twelve leagues; this Rio do Ouro is 24° north of the Equator. It can be identified by the three fairly high sand-hills on the NE, and by the fact that all the country from Angra dos Ruivos to Rio do Ouro along the coast is fairly high and flat, like a table; this is called Terra Alta—but the

¹ I.e. Jandia Point.

² I.e. Caballo Bay, which was discovered in 1436 (1435, according to Barros, *op. cit.* Decade I, book I, chap. 5). Zurara does not mention Gilliannes in this connection.

Arabs and Azenegues¹ call it Hazara². Here at the extremity of this high land which continues for nearly 30 leagues, there is a narrow strip of low land where the Rio do Ouro is situated. The landmarks, then, of the Rio do Ouro are its latitude of 24° north, the three hills of sand on the NE, and further, its situation on a strip of lowlying land at the end of the high land. If when you climb the ship's mast and looking inland, you see a kind of lake, that is where the Rio do Ouro is. All this coast from Cabo do Bojador to Rio do Ouro and for more than a hundred leagues beyond is treeless, grassless and deserted, except that in a few villages of the interior twenty leagues from the sea dwell some Arabs and Azenegues. On all this coast there is an infinite amount of fish. He who wishes to enter this river should steer E by S along the land with the windward side on his left, and he will find three and a half fathoms and four at high tide, and the tide flows NE and SW; but let him beware of steering south on the right hand of the entrance to this river, for it is all shallow here. When he has ascended the river nearly a league to an island lying in it³, he will find good clean anchorage at three and a half fathoms. This river flows inland four or five leagues⁴, and there is no fresh water except in the months of August and September, when there are thunder-showers and fresh water may be found in pools. This river was discovered by Afonso Gonçalves Baldaya, knight of the household of Prince Henry and his cupbearer, and by Gilliannes, likewise his knight, who went thither as captains of his ships. In a raid they captured six noble Arabs⁵, who ransomed themselves for ten black slaves and a

¹ Barros tells us (*op. cit.* Decade I, book I, chap. 9) that these tribes inhabited the part of the Sahara that bordered on "the negroes of Jaloff, where begins the region of Guinea"—i.e. the northern bank of the Senegal. Their language (*vide* Zurara, *op. cit.* chap. 31) was different from that of the Moors—it was Berber, not Arabic.

² This probably represents one of the many European attempts to reduce the Berber word for "desert" to writing. The more usual forms are Zahara, Sahar, Sahara, Sarra, Ssahhara.

³ Herne Island?

⁴ The River Ouro is merely a gulf: the illusion of a river is produced by the 20-mile-long peninsula (ending in Durnford Point) which forms the western side of the gulf.

⁵ Zurara (*op. cit.* chap. 10) speaks of their desire to capture some natives and of a skirmish with nineteen armed men in the Angra dos Cavallos, but

little gold dust, and this gold was the first brought to the Prince from those parts, and the river was accordingly named Rio do Ouro¹.

Item. The Rio do Ouro and the Angra de Gonçalo de Sintra² lie N by E and S by W and occupy fourteen leagues of the route. For a landmark there are in the middle of the bay and rising above it three hills of sand³. Seawards the land terminates in a rocky cliff and the ship that would cast anchor here should first take soundings. The name of this bay is derived from Gonçalo de Sintra, a captain of one of the Prince's ships, who was killed here by the Arabs⁴. He who does not wish to touch at this bay or at Cabo das Barbas but is bound for one of the rivers of Guinea should, on leaving the Rio do Ouro, make his course SSE for thirty leagues, to avoid Cabo das Barbas, which is very dangerous because of its many shallows, as we shall see.

Item. Angra de Gonçalo de Sintra and Cabo das Barbas lie NE and SW and occupy sixteen leagues. This cape is very bad and dangerous, with great reefs of rock which run out into the sea five leagues or more, and which have caused the loss of shipping at times; the ship that enters the bay⁵ within this cape can only save itself by steering WNW out to sea. This cape may be recognised by the two small islands in front of it and, on the land side, by its high cliffs; its distance north of the Equator is $21\frac{1}{2}^{\circ}$ ⁶. He who leaves Rio do Ouro for Arguim or for one of

says that "Baldaya went back to Portugal without the captives he had sought or any certain knowledge as to whether the natives he had met with were Moors or heathen, or as to what their manner of life was." It was five years later, in 1441, and under a different leader, one Antão Gonçalves, that the ten black-moor slaves were brought back from the River Ouro (Zurara, *op. cit.* chaps. 12, 13). It was only on Antão Gonçalves's second voyage that the first gold dust was obtained (Zurara, *op. cit.* chap. 16).

¹ Pacheco makes the same mistake as Zurara and Barros, for no gold is, or was, found in the vicinity of the gulf. Such amounts as were traded there, and at Arguim (*vide infra*, pp. 72-3) were brought by caravan from the interior (cf. Cadamosto, *op. cit.* chap. 10).

² I.e. Cintra Bay.

³ I.e. the Cintra Hills, *vide Africa Pilot*, Part I, p. 175.

⁴ In 1445, as the result of an ill-advised skirmish in which he and a handful of followers were hopelessly outnumbered by some 200 Moors. *Vide* Zurara, *op. cit.* chap. 27.

⁵ I.e. St Cyprian Bay.

⁶ Cape Barbas is $22^{\circ} 20' N$.

the rivers of Guinea should make his course SW for thirty leagues so as to double this Cabo das Barbas and its shallows, and then steer S by W for twenty-five leagues, when he will be opposite Cabo Branco, five or six leagues in the offing with the said Cabo Branco to the E; his distance north of the Equator will be $20^{\circ} 20'$.

Item. Cabo das Barbas and Pedra da Gualée¹ lie NNE and SSW and occupy four leagues of the route; this Pedra da Gualée is about an arrow's flight in length and was so called from its length and its shape, resembling that of a galley, when it was discovered by Afonso Baldaya, knight of the household of Prince Henry, and his cupbearer. This Pedra da Gualée was discovered in the year of Our Lord Jesus Christ 1436². It may be known from its shape, unlike that of any other in all this country, and from the fact that it has some little islands of rock to the south³; this Pedra da Gualée and the Cabo do Carvoeiro⁴ lie NNE and SSW and occupy ten leagues of the route.

Item. Cabo do Carvoeiro and Cabo Branco lie NNE and SSW and occupy sixteen leagues. Two leagues to this side of the cape is the Angra de Santa Maria⁵, with good anchorage and room for ten or twelve small vessels in eight and ten fathoms. For landmarks Cabo Branco has a white hill, on a plateau, resembling a sand dune, the fact that the coast trends ESE here, there being no land visible to the south, and its latitude, which is $20^{\circ} 20'$ north⁶. Thus by its shape, the direction of the coast, and its latitude the cape may be easily recognised. Whoever leaves Rio do Ouro for Cabo Branco should make the voyage as indicated in the paragraph above, that is to say, by way of the Angra de Gonçalo de Sintra and Cabo das Barbas.

¹ I.e. Pedra de Galha of the *Africa Pilot*. "Seen from the northward, at a distance of about 9 miles, the rock looks like a vessel under sail" (*ibid.* p. 176).

² Cf. Zurara, *op. cit.* chap. 10. Barros gives 1435 as the year of the discovery.

³ I.e. Virginie Rock.

⁴ I.e. Cape Corveiro, $21^{\circ} 47' N$.

⁵ West Bay?

⁶ $20^{\circ} 46' N$. actually.

Chapter xxiv

*Concerning the routes and landmarks from
Cabo Branco to Cabo Verde.*

Item. At Cabo Branco begin the shallows of Arguim¹, which extend thirty leagues in length and twenty leagues in breadth. He who is making for one of the rivers of Guinea should, when opposite Cabo Branco, steer S by W for ten leagues and then sail a hundred leagues S by E, when he will reach Angra das Almadias², which is seven leagues on this side of Cabo Verde; sailing thence SW he will reach the said cape. This course is necessary in order to sail outside the shallows of Arguim, which are very dangerous; when he is in sight of Cabo Branco he will see no land to the S or SSE but only to the ESE, which is the direction that the coast takes here.

Item. Cabo Branco and the island of Arguim lie WNW and ESE and occupy ten leagues of the route, and on this part of the voyage there are some shallows of rock and sand and consequently care must be taken not to run aground. On the island of Arguim³ is a castle which the excellent King Afonso V ordered Soeyro Mendez d'Evora, one of his courtiers, to build there after the death of Prince Henry, the governorship of which castle he granted to him and his sons. The Arabs and Azenegues⁴ ...gold...Arguim for barter and black slaves from Jalofo⁵ and

¹ I.e. Lévrier Bay, *vide Africa Pilot*, Part I, p. 179.

² Guet'n'dar, near mouth of Senegal River?

³ Discovered in 1443 by Diniz Dias and Nuno Tristão. Henry lost no time in fortifying it. Protected by Cape Branco, Arguim Island (one of three in the bay) was a convenient centre from which the neighbouring shores and the mainland could be explored. Having first made it the seat of local administration, the Navigator next made it the centre of all his African trade. The erection of the fort and factory at Arguim in 1448 may be said to mark the beginning of a new phase in Portuguese maritime policy. Henceforth, in addition to being crusaders, the Portuguese became pioneers of trade, both for its own sake and as a means to the conversion of the negro. The island is now uninhabited, but the remains of the old fort can still be seen.

⁴ This lacuna appears to require only the words "bring" and "to" to complete the sense.

⁵ Cf. Barros, *Asia*, Decade I, book I, chap. 9. Pory (*Introduction to Leo Africanus' History of Africa*, p. 83, Hakluyt Society) describes them as being

Mandingua¹; also tapir hides for shields and gum arabic and other things; and from Arguim they take back cheap red and blue cloths, coarse kerchiefs and shawls which are made in Alentejo, and other articles of the same sort².

Chapter xxv

Concerning the desert of Arguim and the places beyond.

All the country from Cabo do Bojador to Arguim and fifty leagues beyond is practically desert, being very thinly populated along the sea and in the interior; the reason is that it is all sand and has very little water. The width of this desert is nearly 200 leagues, and its length runs through the whole of Africa for 900 leagues or more in an easterly direction till it reaches the other sea where the Ethiopians dwell under Egypt near Cabo de Guardafune, at the entrance of the Straits of Mequa on the borders of Arabia, which straits join the Red Sea. Arguim and Cabo de Guardafune are on the same parallel of latitude³, namely 24° north, and the country of Arguim and Guardafune

"the most northerly [of the negro peoples] who spread themselves between the two foresaid rivers [Gambia and Senegal] for the space of 500 leagues eastward." In contemporary maps the name first appears (in the form of "jafo") in the Genoese Planisphere of 144(5)7, alongside a prominent river (the Senegal?) of the West African littoral. On the ethnography of this region *vide* M. Delafosse, *The Negroes of Africa*, p. 95.

¹ I.e. the kingdom of Melli (or Mali) which was such a popular subject with the later mediæval map makers, e.g. Catalan Atlas, c. 1375. According to recent researches (*vide* Charles de la Roncière, *La Découverte de l'Afrique au Moyen Âge*, vol. 1, pp. 90 *et seq.*) the capital of the Mandinga kingdom was situated on the left bank of the Sankarani near its confluence with the Niger, i.e. in the vicinity of the gold-bearing region of Bambouk and Bouré (Wan-gara?).

² For a fuller account of the early trade of Arguim *vide* Cadamosto, *op. cit.* chap. 10.

³ Pacheco's figures for the size of the Sahara are more correct than his latitudes, for Arguim and Cape Guardafui are not on the same parallel and neither of them is 24° N. (Pacheco is obviously guilty of a lapse here, for in chap. 23 he places Cape Blanco 20° 20' N. and in this chapter says that it is only 10 leagues away.) Arguim Island is approximately 21° N., Cape Guardafui 12° N.

are alike mostly desert and sand. In this desert dwell some naked savages who live on gazelles, which they net, and hares and snakes, whose flesh they dry in the sun; the name of the desert is Hazara¹, and its inhabitants speak the language of the Azenegues and follow the mistaken sect of Mahomet. It is marvellous how great Nature provides for all necessities of life for this desert of sand, which is impelled by the force of the winds, for it has some islands of rock with some soil, 3 and 4 leagues apart, and some others farther apart, which are too high to be submerged by the sand, and these are the landmarks and refuges for the Moors who...² across it, and for the savage people who live there.

Item. After travelling from Arguim thirty leagues in an easterly direction, you come to a small lake called Ydamem³ where water is to be found at all seasons of the year, and there the Moors who go with merchandise from Arguim and other parts stay and rest and water their camels and take in water for their journey. Four leagues SE of this lake is another lake called Emsery. In this desert there are some salt-pits from which very much salt of a fine quality is extracted in the following manner: at certain points they dig the earth and at a depth of a "covado"⁴ they find a vein like a board a league long or more, but sometimes less, and three inches thick. This they cut in pieces six "palmo"⁵ long and three wide, and a large camel can carry five of these pieces. The salt is very good and white; I saw some of it, which had been brought from Arguim, in the Casa da Mina at Lisbon, the house of the Guinea trade. The Arabs take many camels laden with this salt from the desert to the fair of Tam-bucutu, where they receive much gold for it.

¹ *Vide supra*, p. 69 note.

² The slight lacuna at this point appears to need only the insertion of some such words as "journey" or "make their way."

³ This lake and the following one (Emsery) are probably to be identified with the "salines" of the Tegazza (or Teghâza) region. *Vide* Leo Africanus, *op. cit.* book VI, pp. 800 *et seq.*; Cadamosto, *op. cit.* pp. 45 *et seq.* Until recently several places, approximately in this locality, were carrying on a salt trade with the Sudan. Aruan and Tadeni in particular were doing a large business in that commodity down to the end of the last century. *Vide* F. Dubois, *Tombouctou la Mystérieuse*, p. 285.

⁴ A Portuguese measure containing three-quarters of a yard of a Flemish ell.

⁵ A "palmo" equals one-third of a "covado."

Item. About forty leagues to the SE of Lake Ydamem is a town, inhabited by Azenegues, called Audem¹; it contains about 300 inhabitants, brown in colour and belonging to the excommunicated sect of Mahomet. They are called Ezarziguy. In this town of Audem there is a great traffic in gold, which is brought overland from Guinea; it was even greater before the mine² and other rivers of Guinea were discovered. The late King John II had a certain Rodrigo Reinel³, his squire, there as factor, but these bad Azenegues treated him so cruelly that he must needs return to Portugal; indeed he only escaped from them with great difficulty and personal risk and loss. Fifteen to twenty leagues from Audem are three villages inhabited by Azenegues, by name Singuyty, Tynyguhy and Marzy, in all of which there is traffic in gold from Guinea. All this people is subject to a race of Arabs called Ludea⁴; they live on dates and a little wheat which they sow in the palmwoods, and on the flesh of goats and sheep. Of this country the ancient writers never knew what we know now, and great would have been their delight had they known it. Arguim was discovered by Antam Gonçalves⁵, a knight of the household of Prince Henry, who rewarded him for this service with the governorship of the town of Thomar and with the habit of the Order of Christ.

¹ I.e. Oadem (Zurara, *op. cit.* chap. 76) or Hoden (Cadamosto, *op. cit.* pp. 44 *et seq.*) or Guaden (Leo, *op. cit.* book 1, p. 147). The exact location of this town has never been settled. R. Brown (*vide* Leo Africanus, *op. cit.* p. 116) is inclined to place it on the plateau of El Hodh, due west of Timbuktu, on which is Walata (or Oualata)—a suggestion that is supported by a statement of Leo's (*op. cit.* p. 147). On the trade of Audem *vide* Cadamosto (*op. cit.*) and A. Arcin, *Histoire de la Guinée française*, p. 52.

² I.e. S. Jorze da Mina.

³ In 1487. Until then the Portuguese had confined their main activities to coastwise exploration and trade. This "factory" was established under the authority of the great Lamtouna chief, Soni Ali. The trade was conducted through the entrepôt of Arguim.

⁴ I.e. the Udaya (or Oudaia) tribe of Duihessen Arabs. Leo calls them "the people of Vode [who] enjoyeth that desert which is situated between Guaden and Gualata. They bear rule over the Guadenites [i.e. the people of Audem] and of the Duke of Gualata they receive yearly tribute and their number is grown almost infinite" (*op. cit.* book 1, pp. 146 *et seq.*).

⁵ The credit for this discovery is usually given to Nuno Tristão, who followed up Gonçalves's slave-raiding expedition of 1443.

Chapter xxvi

*Concerning the route from Arguim to Rio de Çanaguá¹
and on to Cabo Verde along the bay.*

In order to avoid prolixity and to follow the course along the coast from Arguim, we omit many things concerning the desert of Arguim and the mountains of Bafoor, where men eat one another², and concerning other places and things of note.

Item. The island of Arguim (and the Rio de Sam Joham³) lie NW and SE and occupy seventeen leagues of the route: from the Rio de Sam Joham to Ponta Tofia⁴ is seven leagues⁵; . . . and from this Furna to Cabo da Area⁴ is fifteen leagues, and from Cabo da Area to Anterrote⁴ is twelve leagues. From Anterrote to the palms of Çanaguá⁶ is twenty leagues, and these palms are on the windward of the Rio de Çanaguá to the NE. All this coast from the Rio de Sam Joham to the palms lies

¹ I.e. River Senegal.

² In the Middle Ages (and earlier) the Sudanese fringe of the Sahara was inhabited by sedentary folk. These were in all probability negroes "more or less mixed with Negrillos and white autochthones of North Africa. Together they formed a group, fairly disparate perhaps in certain respects, which Moorish traditions generally designate by the term Bafur; from them, doubtless, have gone forth, by ramification, the Songhoy or Songai towards the east, the Serers towards the west and, towards the centre, a great people called Gangara by the Moors, Wangara by Arab authors and writers of Timbuktu, and comprising in our day as its principal divisions the Mandinga, properly speaking, or the Malinké, the Bambara and the Jula" (M. Delafosse, *The Negroes of Africa*, p. 45). Pacheco's "mountains of Bafoor," therefore, are obviously the Fouta Djallon Mountains (the "Albafur" of Diogo Gomes, *vide* E. Prestage, *op. cit.* p. 131). Now to the southeast of the Fouta Djallon, in the forest belt, there are located many very primitive negro tribes who, until very recently, were given to cannibalism (Delafosse, *op. cit.* pp. 97 *et seq.*).

³ I.e. St John Bay, between Thila peninsula and Cape Timiris; it penetrates inland for some 17 miles. There is no river until you come to the Senegal.

⁴ The whole of this stretch of coast is indented by numerous bights and rocky points which cannot certainly be identified with any of these names.

⁵ There is an obvious lacuna here. The "Furna" referred to is apparently Furna de S. Ana, which appears on a number of contemporary maps between Ponta Tofia and Cabo da Area, or Arca (*vide* "Guinea Portugalee" portolan chart, c. 1489—Egerton MS. 73 and Juan de la Cosa world map, 1500).

⁶ The position of these palms is marked on nearly all the portolan charts of the period. On an otherwise barren stretch of coast, they provided an admirable landmark. Cf. *Africa Pilot*, Part I, p. 187.

north and south, and the country is all covered with sand and very low and dangerous, with many shallows of rock and sand which make navigation difficult. This route is out of the course for ships making for Rio de Çanaguá and Cabo Verde and other parts of Guinea, for it forms a very large bay (which includes the shallows of Arguim) extending for over thirty leagues. No ship making for the Çanaguá should enter this bay, but from Cabo Branco should steer straight for this river and the other parts beyond it.

Item. A ship near Cabo Branco wishing to go to the Rio de Çanaguá must sail ten leagues S by W, to avoid the shallows of Arguim, then sail twenty leagues due south, and the Rio de Çanaguá will be 60 leagues to the SW of it. Taking this course it will sail outside the shallows of Arguim, as we have said, and will anchor at the palms three leagues on this side of the said river, which is distant from the Equator $15^{\circ} 25' N^1$. The bar and channel of this river are liable to change and the entrance to it is uncertain; we will therefore only say that a ship entering it should take soundings at the bar, and find that the tide flows NW and SE, contrary to the flow of the tides in Spain². Above the mouth of this river to the NE is a wood which is called the forest of Chalam³, and at its mouth are shallows which run out into the sea a league or more. In the months of July, August, September and October this river carries down much fresh water from the hills, for it is then winter in this country and there is much rain⁴. The pilot who would enter this river should be careful to make for land ten or twelve leagues on this side of it and if it be night should anchor there and proceed by day, for this land is very low and difficult to recognise⁵; its only means of recognition are the forest of Chalam and its latitude of $15^{\circ} 25'$ north. From the mouth of this river the coast runs NE

¹ Actually $16^{\circ} N$.

² *Vide* Introduction, pp. xxvi, xxvii.

³ Sohr Wood? (*vide Africa Pilot*, Part I, p. 188).

⁴ There are two seasons on the Senegal coast: the dry and the wet. The dry season begins, according to locality, in November or December and lasts until the end of May or even later. The peak rainy months are those Pacheco enumerates. But the rainy season is far from being the cold season or "winter" as Pacheco calls it. In fact September is the hottest month on the coast and has a mean temperature of $82^{\circ} F$!

⁵ Cf. *Africa Pilot*, Part I, p. 190.

and SW to Cabo Verde; the natives call this river Encalhor and the country near it Çanaguá and the kingdom Jalofo. In our time you could buy ten or twelve negroes here for one poor horse, but owing to the abuses of this trade you can now obtain only six; it was also possible to barter a little gold for kerchiefs and red cloths and other articles. At the bidding of the virtuous Prince Henry, Denis Diaz, a knight of the household of King John his father, and Lançarote de Freytas, knights and captains of the prince, discovered this river¹; and when this Rio de Çanaguá was first discovered and made known, the Prince stated that it was a branch of the Nile which runs west through Ethiopia, and this was the truth. At the time when the bartering was good four hundred slaves were obtained yearly from this river (but sometimes less by half) in return for horses and other merchandise.

Chapter xxvii

Concerning the source and character of the Rio de Çanaguá and of the two Ethiopias².

Since we have spoken of this Rio de Çanaguá, it is fitting that we should say something of the interior of the country. First we must note that the Ethiopians and black men begin here³; and since there are two Ethiopias, it is well to state that this first Ethiopia is called Lower, or Low, Western Ethiopia, and it is well known that none ever died of pestilence in it. Not only did it receive this privilege from the Majesty of great Nature, but we know by experience that none of the ships' crews making

¹ Zurara makes no mention of Lançarote de Freytas on this voyage (1445). On a subsequent voyage he speaks of a certain Alvaro de Freytas who, along with Lançarote Pessanha, followed the coast down to the Senegal and beyond. From the context it is clear that de Freytas was not present on Denis Diaz's voyage. Further, Zurara nowhere speaks of a *Lançarote* de Freytas: in view of the close association of Lançarote Pessanha and Alvaro de Freytas, it may be that Pacheco has confused the two names.

² *Vide* Appendix No. 1.

³ This is substantially true: Moors and Berbers inhabit the northern bank, the Jalofo (i.e. negroes) the southern bank of the Senegal.

this voyage die of the plague in this climate, although they may have sailed from a plague-stricken Lisbon, and although on this voyage some have sickened and died, as soon as they [i.e. the survivors] reach Ethiopia they are immune. This first Ethiopia extends along the coast from Rio de Çanaguá to Cabo de Boa Esperança in $34^{\circ} 30'$ south. The distance from that river to the cape is 1,340 leagues. This country is also known to us as Guinea; and it seems to us [i.e. me] that in this promontory of Boa Esperança the coast of Africa ends, turning back from this cape to the mine of Çofala¹ and thence to Monsombique and Quiloa and the cities of Mombaça, Melinde, Patte², Lama³, Haranha⁴ and Maguadaxo⁵, a populous city, and many other places along this coast to Cabo de Guardafune at the entrance of the Arabian Gulf and the Gulf of Mequa which communicates with the Red Sea. The coast from the Cabo de Boa Esperança to Cabo de Guardafune was, by ancient writers, called Ethiopia under Egypt and its length is 1,060 leagues; so that the whole of Lower Ethiopia has a coastline of 2,400 leagues, namely 1,340 from Çanaguá to Boa Esperança and 1,060 from there to Guardafune, all of which have been navigated by men of Portuguese race, besides the further leagues of India. The inhabitants of these Ethiopians are black, with short curly hair like the frieze of a cloth.

Upper Ethiopia begins at Rio Indo beyond the great kingdom of Persia; it was from this river that India derived its name. Its sea coast extends . . . leagues; its inhabitants are black but not so black as those of Lower Ethiopia, their hair is smooth and long like that of white men.

Thus the first black men are found at the Rio de Çanaguá. This river is the beginning of the kingdom of Jalofo⁶, which extends nearly a hundred leagues in length and forty in breadth; on the north the Rio de Çanaguá divides it from the Azenegues; on the south it borders Mandingua and on the east the kingdom

¹ *Vide supra*, p. 4, note.

² I.e. Patta Isle, 2° S., off the coast of Kenya.

³ I.e. Lamu Isle, to the south of Patta.

⁴ Text corrupt: in all probability it is to be identified with the Brava of Duarte Barbosa (*op. cit.* vol. 1, chap. 16).

⁵ I.e. Mogadishu, $2\frac{1}{2}^{\circ}$ N. in Italian Somaliland.

⁶ Cf. Cadamosto, *op. cit.* p. 74.

of Tucuro!¹. The coast of Jalofo extends for fifty-five leagues, namely 25 leagues from Rio de Çanaguá to Cabo Verde and 30 leagues from Cabo Verde to Rio de Guamea, and this river divides Mandingua from Jalofo. The King of Jalofo can put 10,000 horsemen into the field and 100,000 footmen; they are all naked except the nobles and honourable men, who wear blue cotton shirts and drawers of the same stuff. These peoples, as those of the great kingdom of Mandingua and of Tucuro! and other negroes, are all circumcised and worship in the false sect of Mahomet. They are given to vice and are rarely at peace with one another, and are very great thieves and liars, great drunkards and very ungrateful and shameless in their perpetual begging.

All these peoples and others who dwell near them are ignorant of the source of the Rio de Çanaguá, which is so large and deep that they call it Rio Negro. Many intelligent Ethiopians who know different provinces and countries for five hundred leagues up this river have told us that its source is unknown; but from its course and beginnings we know that it rises in a great lake of the river Nile thirty leagues long and ten broad, so that it seems that this is the branch which the Nile throws out through Ethiopia in a westerly direction, the other branch flowing north and disemboguing by four mouths in the sea of Egypt, as we have stated in the fifth chapter of this book. At the head of this lake is a kingdom called Tambucutu², which has a large city of the same name on the edge of the lake. There also is the city of Jany³, inhabited by negroes and surrounded by a stone wall,

¹ I.e. Tacrouf of Edrisi, the Tocaror of the Valseccha and other Catalan planispheres.

² In this part of its course the Niger has braided its channel and in periods of flood water inundates a very large area of its flood plain. In addition several large permanent swamps dot the riverine territory south of Timbuktu for 150 miles to the confluence of the Niger and the Bani. During the summer floods it would be no exaggeration to describe this area as a great lake "thirty leagues long and ten broad."

³ I.e. Jenné (alternatively Genné, Genna, Jinnie), the modern Dienné, which is located on a tributary of the Niger—the Bani—some 150 miles southsouthwest of Timbuktu at the southern extremity of the great flood area, i.e. "on the edge of the lake." Its importance was derived largely from the fact that it was the outlet for the gold-mining area of Melli and of the Bobo and Lobi country. As access to the town was, in summer, only possible by water, or by a very circuitous land route skirting the inundated country,

where there is great wealth of gold; tin and copper are greatly prized there, likewise red and blue cloths and salt, all except the cloths being sold by weight; also greatly prized here are cloves, pepper and saffron, and fine thin silk and sugar. The commerce of this land is very great, and in the above-mentioned places and in Cooro¹ as well, fairs are held; every year a million gold ducats go from this country to Tunis, Tripoli of Soria² and Tripoli of Berbery and to the kingdom of Boje³ and Feez and other parts. This Rio de Çanaguá would be navigable for small vessels were it not for a great rock a little over 250 leagues from its mouth before one arrives at Tambucutu and the other towns. This rock is called Feleuu⁴ and it runs across the river so that no ship or boat can pass, as the water pours over it in a cataract. The ships of your Highness ascend this river only so far as the kingdom of Tucuirol, which the tide reaches sixty leagues from the mouth and bar of the river⁵. There six or seven slaves are bartered for one horse of no great value, and some gold in return for kerchiefs and red cloths and stones called "alaqueguas," which we are familiar with as stones that staunch blood⁶. In

it is not difficult to see how the belief that it was on a lake and the centre of a gold-producing region originated. Judging from the context of a letter written by a certain Antonio Malfante from Touat in the Sudan in 1447 Jenné must have ranked in importance with Melli and Timbaktu. (*Vide* Charles de la Roncière, *Relation de Voyage datée du Touat... en 1447...*, p. 29.) John Pory (*op. cit.* p. 79) called "Genni" the chief city of the country of Guinea, which, he says, takes its name from the city. According to him it was situated on the Senegal River.

¹ I.e. Koro, near the headwaters of the Sankanni River, in the Ivory Coast uplands.

² The old Italian form of Syria.

³ I.e. the modern Bugia or Bougie, now part of Algeria.

⁴ I.e. Felu Falls, near the modern town of Kayes some 500 miles upstream. *Vide Africa Pilot*, Part I, p. 189 (cf. John Pory, *op. cit.* p. 81).

⁵ Cf. *Africa Pilot*, Part I, p. 192: "During the period of low river, December to June, tidal influence is said to extend to Diouldé Diabé, 238 miles above St. Louis."

⁶ I.e. bloodstone. Cf. Richard Jobson (*Purchas' Pilgrims*, vol. ix, p. 300, Macle hose edition): "they [i.e. the natives of the Gambia River] buy blood-stones, long and square, of the Portugals, which their women wear about their middles, to preserve them from bloody issues...." The idea that red stones will staunch the flow of blood if laid upon the open wound was still cherished by the people of Albania at the end of the nineteenth century. *Vide* J. G. Fraser, *The Magic Art*, vol. I, p. 165.

this country there are very large snakes¹, twenty feet long and more and very thick. There are other snakes a quarter of a league long, with thickness, eyes, mouth and teeth in proportion; there are very few of these this size, but when they reach the size I mentioned their instinct is to leave their native lakes and make for the sea. On their way thither they work much damage, and multitudes of birds fall upon them and pick at their flesh, which is of an incredible softness, and when they reach the sea they dissolve in the water. These snakes are rarely seen, once in every ten years or so, and will seem incredible to those who have not our experience of these things². There are also in this river very large lizards, many of them twenty-two feet long, and their mouths are so large that they can easily swallow a man³. Here also there is a wood called "balamban"; its surface is white but inside it is as black as a buffalo's horn and as hard as bone; many articles are made from this in this kingdom, and as a powder in water it is very good for coughs⁴. This river is rife with fever; the winter in this land lasts from the middle of July to the 15th of October⁵. We will omit much else concerning Rio de Çanaguá in order to avoid prolixity.

¹ I.e. Pythons. Cf. De Bry (*Purchas' Pilgrims*, vol. vi, p. 324, Maclehose edition): "There was one in my time taken there [i.e. Cape Verde region] as the negroes told me, which was 30 feet long and as much as 6 men could carry." The largest species of African python—*Python sebae*—commonly attains a length of 20–24 ft. and is native to Senegambia. Vide F. Angel, *Les Serpents de l'Afrique Occidentale Française*, pp. 60–1.

² Vide Appendix No. 2.

³ I.e. crocodiles. Cf. Leo Africanus, *op. cit.* book ix, pp. 950 *et seq.*

⁴ I.e. ebony. The *Encyclopædia Britannica* (11th edition) in speaking of the best type of Indian ebony says that "the bark of the tree is astringent and mixed with pepper is used in dysentery by the natives of India." Pliny in his *Natural History*, book xxiv, chap. 52, informs us that the root of the ebony tree, when applied with water and with the addition of the root of the oleander in equal proportions and of honey, "is curative of cough."

⁵ Vide p. 77 note.

Chapter xxviii

Concerning the route from Rio de Çanaguá to Cabo Verde, and the islands which lie a hundred leagues out at sea from this cape.

Item. Rio de Çanaguá and Cabo Verde lie NE and SW and occupy twenty-five leagues of the route. The latitude of this cape is $14^{\circ} 20'$ north¹. From the point of this cape a great bank of rock runs out into the sea for half a league, and a ship would do well not to approach too close to the front of it. Inside the cape on the SE are three islets²; one of them is at the mouth of a large harbour which is called Angra de Bezeguiche³, as is shown in our drawing, which we have painted from sight. Inside this bay is anchorage for forty or fifty small vessels in five and six and up to eight fathoms on a clean bottom. Outside the island of Palma⁴ any number of large ships can anchor at fifteen and sixteen fathoms on a sandy bottom, half a league from this island which will lie to the N by W of them: they should be firmly anchored because in August, September and October in this country there are great windstorms accompanied by thunder⁵, this being the winter-time. It is possible to take in water, wood and meat here, but only with the goodwill of the natives, otherwise the crews will suffer injury. *Aqui mapa.*

Having described Cabo Verde and how that, in ancient times, it was called the Promontory of the Hesperides, we must also describe the islands which lie a hundred leagues out to sea and

¹ Actually $14^{\circ} 33'$ N.

² I.e. Madeleine Islets. Actually they are four in number.

³ I.e. Gorée Bay. Bezeguiche was the name of the lord of that land with whom Diogo Gomes had dealings on his voyage of 1456(8?). He described him as "malignant against the Christians"—a characteristic that still seems to have been applicable in Pacheco's day.

⁴ I.e. Gorée Isle.

⁵ *Africa Pilot*, Part 1, p. 198, speaks of Gorée Bay as being "well sheltered, except during the rainy season, when the tornadoes which blow from the eastward and southward quickly raise a choppy sea"; but these tornadoes are neither so frequent nor so violent as those experienced farther to the south.

were, of old, known as the Hesperides, as Pliny tells us in the thirty-first chapter of the sixth book of his *Natural History*¹. We now call the principal island of this group the Isle of Sam Thiago; in all, there are ten islands besides two large islets². For a clearer understanding we have given here a painting of these islands with their shape and their position in relation to one another and to Cabo Verde.

Item. The Isle of Sam Thiago and Cabo Verde lie W by N and E by S, and occupy a hundred leagues of the route; since our drawing is clear and gives the winds and routes and relative position of these islands we will not put it in writing. We need only say that the largest island, namely Sam Thiago, is $15^{\circ} 20'$ north of the Equator³, and the island of Boa Vista $15^{\circ} 50'$. The islands of Sam Nicolao, Sant' Antonio, Santa Luzia and Sam Vincente are all at $16^{\circ} 40'$ north; as for the islands of Foguo and Braba⁴ and Mayo it is unnecessary to give their latitudes. From Sam Thiago and the other islands come yearly to Portugal many skins of goats and hides of cattle and many fats and fairly fine cottons. Fruit only grows in this land if artificially watered, for it only rains in three months of the year, August, September and October. Owing to its latitude the inhabitants have two summer solstices in the year: on the 22nd of April, when the sun is in the 11th degree of the sign of Taurus⁵, with a declination of $15^{\circ} 12'$, and when it is immediately above the heads of the inhabitants of these islands, more especially of Sam Thiago; and on the 3rd of August, when the sun is in the 9th degree of the sign of Leo⁶, before reaching the autumn equinox, and is 90°

¹ Cf. J. Pory, *op. cit.* p. 97. The Cape Verde Isles were certainly not known in antiquity. The Hesperides are most probably to be identified either with the Canaries or the Madeiras.

² There are four such islets.

³ This is the latitude of the most northerly point in the island.

⁴ I.e. Brava.

⁵ In the technical sense of the word the twelve signs of the Zodiac are geometrical divisions of the heavens 30° in extent, the sun spending approximately 30 days in each sign, i.e. approximately 1 day in each degree of each sign during the course of the year. At the moment of crossing the equator (11 March according to Pacheco's reckoning, *vide* chap. 9), the sun is at the first point of Aries. Thirty-one days later, i.e. 11 April, it enters Taurus. On 22 April, therefore, the sun will be in the 11th degree of Taurus, as Pacheco says.

⁶ Following Pacheco the sun will enter Leo on 13 July. It will be in the 21st degree of the sign, not the 9th, on 3 August.

above the horizon, that is, immediately above the heads of the inhabitants of Sam Thiago, with a declination of $15^{\circ} 12'$. Although on these days the sun's rays are so near them, they bear it well. These islands are unproductive¹, being close to the tropic of Cancer; they have very few trees, owing to the lack of rain in all but the three aforesaid months. The land is elevated, rocky and difficult of access. These islands were discovered and peopled at the bidding of the virtuous Prince Henry². And now we will return to Cabo Verde and describe the coast in due order.

Item. From Cabo Verde to [Porto] d'Andam is six leagues and this Porto d'Andam³ has red cliffs. There was formerly good barter of slaves for horses here, ten slaves for one horse of little worth, but it is now abandoned. From Porto d'Andam to Cabo dos Mastos⁴ is two leagues; this cape has bare red cliffs, treeless and higher and larger than those of Porto d'Andam. In the sea off this cape in thirty to forty fathoms there is plentiful fishing of pargos⁵, badejos⁶ and other fish. From Cabo dos Mastos to Porto d'Ale is two leagues⁷; this Porto d'Ale has a beach and a wood of large, serried trees in a low valley resembling a marsh, and these trees are many more in number than those of any other grove. In front of this wood there is anchorage for small vessels in four fathoms on a clean bottom of gravel and coarse sand about half a league from land; but a large ship must anchor in twelve fathoms on a clean bottom of mud a good league from land. Small vessels anchoring at four fathoms in front of this wood must, however, beware of a rocky shallow located to the windward of this anchorage towards the west; it runs out to sea nearly half a league and is only visible when the water breaks on it. This Porto d'Ale is situated very close to the wood. There used to be a very good market for slaves at this place, ten slaves could be had for a horse, but now owing to the

¹ Cf. J. Pory, *op. cit.* p. 98.

² On the vexed question of the actual discovery of the Cape Verde Isles, *vide* E. Prestage, *op. cit.* pp. 141 *et seq.*; also S. Barcellos, *Subsidios para a historia de Cabo Verde e Guiné*, vol. 1, chap. 1.

³ I.e. Red Cape, $14^{\circ} 38' N$.

⁴ I.e. Cape Naze, *vide* *Africa Pilot*, Part 1, pp. 201-2.

⁵ I.e. sea-bream, a variety of gilt-head.

⁶ A species of cod.

⁷ I.e. Portudal Anchorage, $14^{\circ} 27' N$. *Vide* *Africa Pilot*, Part 1, p. 202.

abuses committed in this barter, they will only give six¹. Here one can buy much meat and maize and beans and water, but not without the goodwill of the natives. This coast is very low and difficult to recognise and in order to do so one must sail along the shore, which is very woody. From Cabo Verde to Porto d'Ale is ten leagues; they lie E and W and are in the same parallel, $14^{\circ} 20'$ north of the equator. The depth of winter [sic] in this country is in the month of August.

Item. Porto d'Ale and Rio dos Barbaciis² lie E and W and occupy five leagues of the route; this river has many rocks and shallows running into the sea for two leagues and more to the NW and for a league and a half to the south, all sand. The landmark of this river is a thick wood along the bank at its mouth, at the northern extremity of its shallows; he who enters this river should for greater safety take soundings at its bar to find the deepest passage, for the channel changes, and entering straight in the deepest part he will find a fathom and a half at low tide—the tide running NW and SE, and two fathoms at full. To the north on his left he will see a tall tree of great girth and at its foot are many springs of fresh water where one can take in water in abundance; this river may be ascended twenty leagues³. For a poor horse you can receive here six or seven slaves, but the captain who is engaged in this barter should guard against these negroes for they are bad people. The latitude of this river is $14^{\circ} 15'$ north of the equator⁴.

¹ Cf. Cadamosto, *op. cit.* pp. 116–17.

² I.e. Salum River. It was originally named after the Barbacini, a negro people whom Cadamosto and Usodimare discovered in 1455.

³ Cf. *Africa Pilot*, Part I, p. 204.

⁴ Actually $13^{\circ} 50'$ N.

Chapter xxix

Concerning the routes and landmarks from Rio dos Barbaciis to Rio de Guambea.

Item. By standing four leagues out to sea and sailing 15 leagues SE from Rio dos Barbaciis, you will come to the mouth of Rio de Guambea. The country from the Barbaciis to the Guambea is very low and woody, and the sea has many rocks and sand shallows and at ten fathoms one is four leagues from land and cannot see it owing to its lowness. This country, extending to the said Rio de Guambea, is called Gibandor¹; it has a very large bay which on the SE forms a point running far into the sea². On this point there is a very large palm forest which covers two leagues or more, and out at sea a league from this point is a shallow of rock and sand which is called the shallow of Santa Maria³, with not more than a fathom of water over it; it is very dangerous and some ships have been wrecked there. This river is $13^{\circ} 5'$ north of the equator. High tide flows NW and SE⁴. Half a league to the N of this palm forest is the mouth of the river at the present time, and he who enters it must sail E by S and in the deepest part he will find two and a half fathoms at low tide and three and a half at full; and it is noteworthy that the tide flows with such force in this river that it runs up it 180 leagues and more⁵. 150 leagues from its mouth is a district called Cantor⁶, where there are four towns, the principal of which is called Sutucoo and has some four thousand inhabitants; the names of the other three are Jalandoo, Dobancoo

¹ Jubandor in Serrão Pimentel. *Arte Practica de navegar*, p. 254 (1681). According to Richard Jobson (*Purchas' Pilgrims*, book ix, chap. 13, para. 1, Macle hose edition), the River Gambia was called by the natives "Gee, a general name in their language for all rivers and waters...." Gibandor probably signifies "land of rivers."

² I.e. Bald Cape.

³ It is still called St Mary Shoal, *vide Africa Pilot*, Part I, p. 209.

⁴ *Vide* Introduction, pp. xxvi et seq.

⁵ According to the *Africa Pilot*, Part I, p. 211, the tidal influence extends only as far as Yarbutenda, 250 miles from the mouth.

⁶ Cf. John Pory, *op. cit.* p. 81, and Diogo Gomes, "Die Handelsverbindungen der Portugiesen mit Timbuktu im XV. Jahrhunderte," by F. Kunstmann in the *Abhandlungen der III. Classe der K. Bayerischen Akademie der Wissenschaften*, vi. Band, 1850, p. 27.

and Jamnamsura; they are all enclosed¹ with wooden palisades and are distant from the river half a league, a league and a league and a half. At Sutucoo² is held a great fair, to which the Mandinguas bring many asses; these same Mandinguas, when the country is at peace and there are no wars, come to our ships (which at the bidding of our prince visit these parts) and buy common red, blue and green cloth, kerchiefs, thin coloured silk, brass bracelets, caps, hats, the stones called "alaquequas"³ and much more merchandise, so that in time of peace, as we have said, five and six thousand doubloons of good gold are brought thence to Portugal. Sutucoo and these other towns belong to the kingdom of Jalofo, but being on the frontier of Mandingua they speak the language of Mandingua. This Rio de Guambea divides the kingdom of Jalofo from the great kingdom of Mandingua⁴, which in the language [of the Mandinguas?⁵] is called "Encalhor," as I have said above; Rio de Guambea itself is called in the Mandingua tongue "Guabuu." When ascending the Guabuu the kingdom of Jalofo is on the N and that of Mandingua on the S, extending nearly 200 leagues in length and eighty in breadth. The king of Mandingua can put into the field twenty thousand horsemen, and infantry without number⁶ for they take as many wives as they choose; when

¹ Text corrupt.

² Richard Jobson's "Setico" (*vide Purchas' Pilgrims*, vol. ix, pp. 289 *et seq.*, Maclehose edition).

³ I.e. bloodstones.

⁴ At the beginning of the fifteenth century two great empires divided the supremacy of the western Sudan, the Mandinga and the Songhoy, the first terminating the period of its ascendancy, the second on the eve of attaining it. The Mandinga Empire exercised its influence, in some cases its direct authority, over all the countries comprised between the Sahara to the north, the forest to the south, the Atlantic on the west and the meridian 5° west on the east. The Songhoy Empire was supreme eastwards of this meridian. Although decline was already setting in upon the Mandinga Empire in Pacheco's day it is quite apparent from his references that its power still extended down to the lower Gambia. However, had he written a few years later, he would have had a different story to tell, for in 1534 the "Mansa" of Mandinga sent to John III of Portugal imploring his help against the encroachments of his eastern neighbours. John replied by sending an ambassador! Twelve years later the Songhoy army advanced to the Mandinga capital, the "Mansa" barely escaping with his life.

⁵ Lacuna. The context seems to require some such words as we have inserted: in chap. 26, however, Pacheco says that Rio de Canaguá is called "Encalhor" in the vernacular. *Vide supra*, p. 78.

⁶ Text corrupt.

their king is very old and cannot govern or when he is afflicted with a prolonged illness, they kill him and make one of his sons or near relatives king. 200 leagues from this kingdom of Mandingua is a region where there is abundance of gold; it is called Toom. The inhabitants of this region have the faces and teeth of dogs and tails like dogs; they are black and shun conversation, not liking to see other men. The inhabitants of the towns called Beetuu, Banbarranaa and Bahaa go to this country of Toom to obtain gold in exchange for merchandise and slaves which they take thither. Their mode of purchase is as follows: he who wishes to sell a slave or other article goes to a certain place appointed for the purpose and ties the slave to a tree and makes a hole in the ground as large as he thinks fit, and then goes some way off; then the Dogface comes and if he is content with the size of the hole he fills it with gold, and if not he covers up the hole and makes another smaller one and goes away; the seller of the slave then returns and examines the hole made by the Dogface and if he is satisfied he goes away again, and the Dogface returns and fills the hole with gold. That is their mode of commerce, both in slaves and other merchandise, and I have spoken with men who have seen this¹. The merchants of Mandingua go to the fairs of Beetuu and Banbarranaa and Bahaa to obtain gold from these monstrous folk.

Returning now to Rio de Guambea; it contains water-horses² larger than oxen, of every colour that ordinary horses have; in shape they are like oxen, with cloven feet, but in their neck, face, hair, ears and flanks they are like horses; and on their neck they have two small horns or teeth of two span's length and thick as a man's arm. They live in the river, usually in the shallow parts with the water up to their belly, but also in the depths when they choose; they also come ashore to graze and lie in the sun, the majesty of great Nature thus providing for them both on land and in water. There are also in this river many large lizards³, some of them twenty-three and twenty-four feet from head to tail; they live in the water and come ashore for pro-

¹ *Vide* Appendix No. 3.

² I.e. the hippopotamus. Cf. J. Pory, *op. cit.* p. 74.

³ I.e. crocodiles, *vide supra*, p. 82 note.

pagation, when they lay eggs under the sand much larger than ducks' eggs and when they are hatched they are a span in length and at once enter the water and grow up there; they are dangerous and eat men and oxen and cows. Many other things concerning the Rio de Guambea I omit because I am no friend of prolixity, although it is no bad thing when satisfactorily employed. The people of this country all speak the language of Mandingua and follow the sect of Mahomet¹; they wear blue cotton shirts and drawers of the same material. They have many vices and take as many wives as they like; lust is universal among them. They are very great thieves, drunkards and liars and are ungrateful; all the badness of bad men is in them.

Chapter xxx

Concerning the voyage and landmarks from Rio de Guambea to Cabo Roxo and Rio Grande.

Item. Rio de Guambea and Cabo Roxo lie N and S and occupy twenty-five leagues of the route; half way there is a river called Casamansa, the people on whose banks belong to Mandingua. Here are some shallows of mud, with five or six fathoms, running out two leagues into the sea, and at the end of this mud there are shallows of sand with twelve and fifteen fathoms, extending for four leagues. In this Rio de Casamansa iron is greatly prized, and slaves are bartered for horses and handkerchiefs and red cloths; it is $12^{\circ} 35'$ north of the Equator. I will not speak of the channel of this river, for it often changes; he who would enter it must take soundings at its bar to find the deepest part. The tide in this river runs NW and SE. Twelve leagues beyond Casamansa is Cabo Roxo; its landmark is a reddish cliff at its extremity², and it is 12° north of the Equator. From the Guambea to Cabo Roxo the coast trends north and south, as I have said above; but he who leaves Cabo Verde for

¹ Cf. Cadamosto, *op. cit.* p. 163.

² Cf. *Africa Pilot*, Part I, p. 228. Actually Cabo Roxo is $12^{\circ} 20' N$.

Cabo Roxo must steer SSE in order to make Cabo Roxo, the distance being fifty-five leagues.

Item. Two leagues beyond Cabo Roxo is Falulo¹, where rice and meat are to be had in great abundance; five leagues beyond Falulo is the Rio de S. Domingos², which is subject greatly to fever. Beyond S. Domingos is a small river called Rio das Ancoras³, and a little more than a league beyond this is Rio Grande⁴. It is not as large as the rivers of Çanaguá and Guamea but derives its name from its large mouth, which is seven or eight leagues wide and contains five or six islands. He who would go to the said Rio Grande should sail from Cabo Verde to Cabo Roxo and from there coast along the land in order to enter the Rio Grande.

Chapter xxxi

Concerning the Rio Grande.

Item. The Rio Grande has at its mouth five or six islands, very low and full of woods, called the islands of Buam⁵; the channels flowing between them are not very narrow, but in places they have bad shallows of rock through which the tide runs with great force. These channels are on the other side from the principal entrance of this river, which is on the NW and which runs east and west. The tidal waters flow in so strongly that...leagues above its mouth there is a *macareo*⁶ where the

¹ Bolola?—a large village standing on the beach on the west side of Katon Bay. The breakers off the coast in this vicinity are still called Falulo, *vide Africa Pilot*, Part I, p. 230.

² I.e. Cacheu River.

³ I.e. Mansoa River. Ancora Point and Ancora Isles still preserve the name.

⁴ I.e. Jeba River.

⁵ I.e. the Bissagos Isles, numbering thirteen in all.

⁶ The name given by the Portuguese to the violent flux and reflux of the tide experienced in certain rivers in Africa and Asia akin to a tidal bore: cf. Cadamosto, *op. cit.* pp. 178-9; and Diogo Gomes (*vide* E. Prestage, *op. cit.* p. 132). The *Africa Pilot* (Part I, p. 233), while making no reference to a tidal bore, speaks of strong tidal streams in the various channels of the Jeba River and advises vessels to be on their guard.

incoming tide raises the water twelve and fifteen fathoms and runs with such violence that a ship at anchor there could only escape being swamped by a miracle. The shallows of this Rio Grande run out into the sea for thirty-five leagues, and he who is this distance from land, with the mouth of the river to the ENE, will, if he takes soundings, find sixty fathoms, and the plumb-line will bring up a very fine grey sand, which will indicate to the pilot that he is touching the shallows of this river. If the wind drops and the tide begins to flow in strongly, when he is at twenty-five fathoms, that is, six or seven leagues from its mouth, he should immediately anchor or tack out to sea, if the wind allows, for from twenty fathoms to the shore there are many reefs of rock, some of them visible above water and some not, and the violent current of the tide here can throw any ship upon these reefs, where it will be lost as others before it. On reaching the channel of this river he will find a muddy bottom from fifteen fathoms to the shore. The whole of this coast is very low and woody and difficult to recognise¹. The channel of this river at high tide is eight or nine fathoms deep, and the tide flows NW and SE; the latitude of the river is 11° north of the Equator², the city of Calicut in India being on the same parallel³. The pilot coasting along the land or out at sea who finds himself at a latitude of 11° will know that he is opposite the Rio Grande. The inhabitants of this country are Guoguliis⁴ and Beafares⁵ and are subjects of the King of the Mandinguas; they are very black, many of them go naked, others wear a cotton cloth. Six or seven slaves are here bartered for one horse of small value, and there is a little gold, which is bartered for red cloth and the stones called bloodstones because they staunch blood. These people possess a great abundance of rice, maize, yams⁶, hens, cows and goats. They are Moslems and worship Mahomet and are circumcised but they know neither shame nor the fear of God.

¹ Cf. *Africa Pilot*, Part I, p. 245.

² Approximately 11° 30' N.

³ Actually 11° 15' N.

⁴ The Golos of Western Liberia? (*vide* M. Delafosse, *Negroes of Africa*, p. 95).

⁵ The Biafadas of Portuguese Guinea? (*vide* M. Delafosse, *Negroes of Africa*, p. 95; cf. *Gulf of Biafra*).

⁶ "Ynhames" in the Portuguese, the name given to the various species of *Dioscorea*. They are herbs or under-shrubs with fleshy tuberous roots which are used as substitutes for potatoes where they grow.

Chapter xxxii

Concerning the rivers beyond Rio Grande and some of its tributary rivers and also the routes and landmarks as far as Serra Lyoa.

From Rio Grande to Serra Lyoa there are two courses; one of these is to sail SE from the mouth of the river inside the islands, but few pilots know this country and the voyage should be made by day, anchoring at night; the other is outside the islands in the open sea, as we shall state. Within this Rio Grande is a river called Buguubaa¹ and the negroes along it are Beafares and Guoguliis. Ten leagues beyond Buguubaa to the SE along the coast is another river, by name Nanuus², the inhabitants of this region bearing the same name; six leagues farther on is another river called Rio dos Pescadores³ and five leagues farther on a river called Pichel⁴; still farther beyond is another called Nuno⁵, where there is much ivory. The landmark of this river is a small islet at its mouth. Two leagues beyond this river is Cabo da Verga⁶, fairly high and covered with woods. The coast from Rio Grande to Cabo da Verga lies NW by N and SE by S and occupies thirty-five leagues. This country is very low and difficult to recognise; the bottom is foul with great reefs of rock and on that account very dangerous, so that it should only be navigated by day, standing-to by night; for greater security it should only be done in small vessels of from 25 to 30 tons, for a larger ship will run the risk of being wrecked. All the negroes of this country are idolaters, and although they are ignorant of the law, they are circumcised; this is due to the fact that they are neighbours of the Mandinguas and other peoples who are

¹ I.e. Buba River.

² Cassini River (?).

³ Kassat River (?)—really only an arm of the sea.

⁴ Componi River (?).

⁵ I.e. Nunez River, the island off its mouth is Gonsalvez Island.

⁶ According to the *Africa Pilot*, Cape Verga is 20 miles beyond Nunez River (Part I, p. 251).

Mohammedans. One race of these negroes is called the Banhauus¹, another the Capes² and another the Jaalunguas³; they are numerous and have a king whom they call Jaalomansa. At a place called Famenda a fair is held, and here there is much traffic in gold. These Jaalunguas have no coast towns and dwell in the interior; there are other negroes in this country called Guoguliis. In all this country along the coast there is a certain amount of gold, for which we barter bloodstones, yellow and green beads, tin, linen, brass bracelets, red cloth and basins such as barbers use, and we obtain many slaves here in exchange for such merchandise. The houses in this country are thatched huts and the inhabitants are usually at war with one another; they possess elephants, ounces and various other animals and birds of strange kinds; they live on rice and maize and other vegetables, and also meat and fish, of which there is an abundance. The route beyond Rio Grande of which we have spoken above is from the mouth of that river and its islands to the SE along the coast.

Item. To the W by N of Cabo da Verga ten leagues out to sea is a small island called Alcatrazes⁴, with bad anchorage round it.

Item. From Cabo da Verga to Cabo de Sagres is eighteen leagues, and this coast lies NW by N and SE by S; on its SE side⁵ this Cabo de Sagres has a large bay⁶ with a good clean anchorage in twelve and thirteen fathoms. In front of this cape, a league out at sea, are two small islands with an islet near them, which we call Ilhas dos Idolos⁷. The name is due to the fact that the negroes of this country, when they go to these islands to sow their rice, take with them the idols they worship; when this country was discovered many of these idols were found there and they received this name of Ilhas dos Idolos. On the

¹ The Banyoun tribe? (*vide* M. Delafosse, *op. cit.* pp. 95-6).

² The Tiapi tribe? (*vide* M. Delafosse, *op. cit.* pp. 95-6).

³ The negroes of Fouta-Djallon? (*vide* M. Delafosse, *op. cit.* pp. 95-6).

⁴ I.e. Alcatraz Island (10° 38' N., 15° 23' W.).

⁵ Actually the bay is to the north of Cabo de Sagres (i.e. Tumbo or Tombo Island). *Vide Africa Pilot*, Part I, p. 255.

⁶ Sangaria Bay.

⁷ I.e. the Îles de Los. In all there are eight of them.

larger of these islands¹, on the southern side there is a beach with an excellent spring of fresh water, where at low water ships or their crews can take in water; at high tide the spring is covered. There is also plenty of wood here, and out at sea near these islands at thirty-five and forty fathoms there is good fishing. He who goes to these islands should guard against the negroes, for they are very bad people and have arrows which they poison with a marvellous herb; they have already killed some of our men here. Inland on the mainland opposite these islands there is a very high mountain range which we call the Serra de Brapam², but the negroes give it another name; it has a huge gap in its centre which divides it into two parts. This range, Cabo de Sagres and Ilhas dos Idolos all lie in the same parallel, 9° north of the Equator. Ships can anchor round these two Ilhas dos Idolos in eight or nine fathoms on a good muddy bottom a little over half a league from shore.

Item. Seven leagues beyond these Ilhas dos Idolos is a river called Cristal³. At its mouth to the SE are some tall trees and to the N is a cliff of rock, close to which is the entrance to this river; it has a channel of three fathoms at high tide.

Item. Four leagues beyond Rio de Cristal is another river called Caabite⁴, which has a wide mouth and a dense grove of trees above it on the northern side. As the channel of this and many other rivers of this country is liable to change, the deepest water not always being in the same place, it is advisable to take soundings at the bar before entering the river. All this country is very hot and is densely wooded.

Item. Five leagues beyond Caabite is a river called Tamara⁵, which has a grove of thick, tall trees on the northern side of its entrance; as the bar often changes and the entrance is rendered dangerous by the presence of many sandy shoals, it is important that anyone entering the river should take soundings at the bar.

Item. Four leagues beyond Tamara is another river called Case⁶, and a little over a league from its entrance is a village

¹ I.e. Tamara Island.

² The range of mountains terminating in Mount Kakulima.

³ I.e. Manea River.

⁴ Morebaia River (?).

⁵ Forikaria River (?).

⁶ I.e. Mellakori River.

called Enquee, of some three hundred inhabitants. At the mouth of this Rio de Case is an island¹ and to the NW of it there are also some very tall trees; shallows extend from its mouth into the sea a good league and a half with, in places, two and a half and three fathoms and at its deepest five or six; the sea often breaks on them. He who would enter this river should take soundings at the bar, for it is dangerous and difficult and ships have sometimes been wrecked here. All the country from Tamara to Case inland is divided by many channels and arms of water connecting up one river with another and along these small vessels can sail. The people of this river are called Teymenes, and here very fine gold is obtainable but only in small quantities, likewise slaves. Both gold and slaves are bartered for brass basins and brass bracelets, bloodstones, red cloth, linen and cotton cloths; and in this country they make beautiful mats of palm-leaf and necklaces of ivory. The coast from Ilhas dos Idolos to Case lies WNW and ESE and occupies twelve leagues of the route.

Item. Six leagues beyond the Rio de Case are some red cliffs which adjoin the sea² and the beautiful Serra Lyoa and they extend for three leagues or more; all this coast from Cabo Verde to Serra Lyoa, a distance of nearly 200 leagues, is thickly populated, low-lying, well-wooded and difficult to discern. Near these red cliffs, where they adjoin Serra Lyoa, is a river called Bintonbo³, from which shallows of sand extend a league or more into the sea and at low tide many islets of sand appear above the water. Two leagues above the mouth of the said Rio de Bintonbo is a village called Tanguarim, of about 200 inhabitants; three leagues farther up the most serene King John II ordered a fortress to be built, and later for certain reasons he ordered it to be pulled down. All the negroes from Rio Grande to Serra Lyoa are idolaters and are circumcised without knowing why, except that some say that it is done for cleanliness, while others say that they would not be able to beget children if they were un-

¹ I.e. Tanna Island (*vide Africa Pilot*, Part I, p. 264).

² Cf. *Africa Pilot*, Part I, p. 268.

³ I.e. Sierra Leone River, which, in reality, is only an arm of the sea that receives the waters of several streams, the principal being the Rokel.

circumcised and others say that it was the custom of their fathers¹; but it is probable that the chief reason why they fall into this error is that the Jalofos, Mandinguas and Tucuroees are Mohammedans and are circumcised by their law, and the Beafares beyond them in the same way, and as they are neighbours of the inhabitants of Serra Lyoa they have taken this custom of circumcision from one another. As we always make our voyage from the Ilhas dos Idolos to the said Serra along the coast we will now give their position with regard to one another.

Item. Ilhas dos Idolos and the extremity of Serra Lyoa called Cabo Ledo² lie NW and SE and occupy eighteen leagues of the route; all the inhabitants along this coast between these islands and the said Serra are called Teymenes; they call gold "tebongo" and water "mancha" and rice "maaloo."

Chapter xxxiii

Concerning Serra Lyoa and how the virtuous Prince Henry's discoveries began at Cabo de Nam and ended there.

Following the plan of this work, we must tell of the character of the inhabitants of Serra Lyoa and of their way of living. The greater part of the inhabitants of this land are called Boulooes³, a very warlike people and rarely at peace; they call gold "emloan" and water "men." Sometimes these negroes eat one another, but this is less usual here than in other parts of Ethiopia; they are all idolaters and sorcerers and are ruled by witchcraft,

¹ Text corrupt.

² Literally "Joyous Cape"; it was so named by Pedro de Sintra "on account of the beauty and verdure of the country" (*vide* Cadamosto, *op. cit.* pp. 187-8).

³ The Bulom tribe of the Sierra Leone littoral, one of the many backward and half-savage tribes who have been driven to the shores of the Atlantic Ocean by the Mandinga and Fulani migrations. Their numbers, in common with all the coastal negro tribes, have been decimated by slave-raiding (*vide* M. Delafosse, *op. cit.* p. 95). According to Villaut de Bellefond (*Relation des Côtes d'Afrique appelées Guinée*, chap. 4) the whole country of Sierra Leone was called Boulom by the Moors.

placing¹ implicit faith in oracles and omens. In this country there is gold in small quantity, which the Boulooes barter for salt. They take the salt to a place called Coya², whence the gold comes; it is very fine, of nearly twenty-three carats. We obtain it in exchange for brass bracelets and basins of the size barbers use, linen, red cloth, bloodstones, cotton cloths and other articles. The teeth of these negroes are filed and sharp as those of a dog³. In this land they make ivory necklaces more delicately carved than in any other country, also very fine and beautiful mats of palm-leaf which they call "bicas." In this country are many elephants and ounces and many other animals such as are not to be found in Spain nor in any other country of Europe. Here, as well, are wild men, whom the ancients called satyrs⁴. They are covered with hairs almost as coarse as the bristles of a pig; they seem human and lie with their wives after our fashion, but instead of speaking they shout when they are hurt. As they dwell in the fastnesses of this Serra they can rarely be captured except when very young. I omit many other things concerning them in order to avoid prolixity. All the negroes of this country are naked or wear loin-cloths of cotton; there are no stone buildings in this Serra, the dwelling places being simply thatched huts. Twelve or fifteen leagues from the sea inland is a race of men called Sousos⁵; they possess much iron, which they bring to Serra Lyoa and other parts and make a good profit. Many believe that Serra Lyoa is so-called because there are lions here, but this is not so, for Pero de Sintra, a knight of Prince Henry's household, who discovered Serra Lyoa at the prince's

¹ Text corrupt.

² Cayor (?), Gao (?): cf. book II, chap. 2.

³ The practice of filing the teeth is still widespread among the negro peoples of Central Africa (*vide* J. H. Weeks, *Among Congo Cannibals*, p. 141).

⁴ These people would appear to be identical with "the savage people" of Hanno's Southern Horn. They were covered with hair and when pursued defended themselves with stones. The interpreters called them "gorillæ" (*vide Periplus*, chap. 18). While it is disputable whether they were a primitive race of human beings, or, as seems more likely, a species of the primates, there can be no doubt whatever that they were not gorillas, for these powerful apes are not found in Sierra Leone, they are native only to the Congo-Cameroons region of West Africa. Warmington (*Ancient Explorers*, p. 51) is inclined to identify them with chimpanzees—"a tailless tribe, and eminently anthropoid."

⁵ *Vide* book II, chap. 5, p. 120 note.

bidding, seeing that it was a wild, rough country, called it the Lioness, and there was no other reason; and there can be no doubt of this, for he told me so himself¹.

Item. Serra Lyoa has a point called Cabo Ledo, where there is a shoal of rock, a good gunshot or more from the shore, which rises one . . .² or more above the water; between this shoal and the land there is a channel with seven or eight fathoms of water. Hard by this shoal there are four fathoms of water and any ship can sail up this channel without danger. If when you are in front of Cabo Ledo you steer inland ENE a league along the coast, you will discover a bay with reddish sand³. Here there is a very tall large tree and close at hand a stream of excellent fresh water. To the right there is a bay which has a creek with black sand; here is a good flat beach with room for fifteen or twenty ships to be repaired. In all this Serra there is much fish, rice, maize, hens, capons, and a few cows and other cattle; but whoever comes here must guard against the negroes, for they are very bad people and shoot with poisoned arrows. Serra Lyoa is 8° north of the Equator⁴; these degrees are the number of degrees the Arctic Pole is above the horizon. As there is a more direct route from Cabo Verde to this Serra, by the open sea, we will describe it here.

Item. He who leaves Cabo Verde for Serra Lyoa must sail south eighty leagues; he will then be opposite the shallows of Rio Grande and 11° north of the Equator, and the mouth of Rio Grande will be to the ENE 35 leagues off; here he will find depths of from 50 to 60 fathoms and a bottom of a very fine ash-coloured sand. From here he must sail ESE 120 leagues when he will arrive at Serra Lyoa. Twenty leagues before reaching it, the soundings reveal red coarse sand mixed with small pebbles, the bottom of the sea all round the Serra being of this kind; there is good fishing of sea-bream here. The pilot

¹ Cadamosto, who relates Pedro de Sintra's expeditions, says that the mountain was called Sierra Leone "on account of the thunder which was constantly heard on its cloud-capped summit" (*op. cit.* p. 188).

² Lacuna. Judging by the description of this locality in the *Africa Pilot* (Part I, p. 269) the sense of the original is restored by the insertion of the word "covado" (i.e. three-quarters of a yard).

³ I.e. Cockerill Bay.

⁴ Actually 8° 30' N.

who goes to this country should have a stout sail on his ship, since there are frequently heavy thunderstorms here, accompanied by very strong winds¹; the best course is to furl sail till the storm passes. In this country there are large canoes made from a single tree, many of which carry fifty men; they use them for war and other purposes. The country is full of woods which extend for nearly a thousand leagues along the coast; it is also very hot all the year round², and in this connection we may note that Alfragano states that winter and summer with the Ethiopians are of the same character³. At this point the discoveries undertaken by the virtuous Prince Henry came to an end.

Many are the benefits conferred upon this realm of Portugal by the virtuous Prince Henry, for in the year of Our Lord 1420 he discovered the island of Madeira⁴ and ordered it to be peopled, and he sent to Sicily for sugar-canes and planted them in Madeira, and for skilled men to teach the Portuguese how to make sugar⁵, as a result of which this island now yields thirty thousand gold crusados⁶ to the Order of Christ. Further, he sent to Majorca for Master Jacome⁷, a skilled maker of charts—it was in this island that these charts were first made—and by

¹ Cf. W. G. Kendrew, *Climates of the Continents*, p. 37.

² Only 4° F. separate the coolest and the hottest months; 79° F. (August and September), 83° F. (February and March).

³ *Rudimenta Astronomica*, chap. 6, edited by J. Hispalensis, 1546.

⁴ Pacheco is wrong here, for several Catalan and Italian maps of the fourteenth century (e.g. Catalan Atlas, 1375, Pizzigani portolan chart, 1367) portray it, and the author of the fourteenth-century *Libro del Conoscimiento de todos los reynos y tierras* refers to it (*vide* Hakluyt Society edition entitled *Book of the Knowledge*..., p. 29). Moreover Pacheco is almost alone in attributing its discovery to the Portuguese. Antonio Galvão (*Discoveries of the World*, p. 58) and others after him maintained that an Englishman by the name of Machin "was driven by a tempest to that island" in 1344, but their view is not very well supported at the present time. Zurara, who is usually explicit, merely writes "of how the island of Madeira was peopled" by the Zarco expedition of 1420 (*op. cit.* chap. 83). The official documents relating to the expedition (*vide* *Alguns Documentos*..., p. 7) speak of Zarco and his colleagues simply as colonisers; this concurs with Diogo Gomes's statement (*vide* E. Prestage, *op. cit.* p. 38) and may be taken as a fairly conclusive argument for the discovery of the island prior to 1420.

⁵ Cf. Barros, *Asia*, Decade 1, book 1, chap. 3.

⁶ The value of the crusado was originally 325 reis, *vide* Prologue, book II.

⁷ According to a recent Portuguese investigation (Gonçalo de Reparaz, *Mestre Jacome de Malhorca*), Jacome is to be identified with Jahuda Cresques, son of Abraham Cresques, author of the Catalan Atlas of 1375 which is the earliest surviving example of Catalan cartography. (The A. Dulceto portolan

many gifts and favours brought him to these realms, where he taught his skill to men who in turn taught men who are alive at the present time. Further, he ordered the peopling of the islands of the Azores¹, which of old were called Guorguonas². All this and many other good things, which I need not relate, were done by this virtuous prince, besides discovering Guinea as far as Serra Lyoa. For greater clearness we have placed here a painting of Serra Lyoa, made on the spot; and here ends the first book. We must therefore pray God for his soul; he died on the 13th of November in the year 1460 and is buried in the monastery of Santa Maria da Vitoria da Batalha, in the chapel of King John his father. The benefits conferred on Portugal by the virtuous Prince Henry are such that its kings and people are greatly indebted to him, for in the country which he discovered a great part of the Portuguese people now earn their livelihood and the Kings of Portugal derive great profit from this commerce; for, from the Rio de Çanaguá on the frontier of the kingdom of Jalofo, where are the first negroes (as we have stated at the end of the 27th chapter of this book) to Serra Lyoa inclusive, when the trade of this country was well ordered, it yielded yearly 3,500 slaves and more, many tusks of ivory, gold, fine cotton cloths and much other merchandise. Therefore we must pray God for the soul of Prince Henry, for his discovery of this land led to the discovery of the other Guinea beyond Serra Lyoa and to the discovery of India, whose commerce brings us an abundance of wealth.

Aqui mapa.

chart of 1339 which professes to have been made "in civitate maioricarum" is largely a copy of the *Genoese* chart of A. Dalorto of 1325.) Now while it is clearly unreasonable to suppose that this map was the first of that provenance—its wealth of accurate description and its technique point to its being the work of an experienced cartographer—yet there is no conclusive evidence for holding Majorca, or any of the Balearic Isles, to be the birth-place of the portolan chart. Indeed the oldest extant portolan charts all derive from various parts of Italy (e.g. the Pisan chart c. A.D. 1300, the Carignano chart c. 1300, and the Vesconte maps of c. 1311-21). It needs to be borne in mind none the less that these early maps are all of a pattern which may perhaps have received its form elsewhere in the Mediterranean.

¹ According to Zurara, the colonisation of these islands began in 1445 (*op. cit.* chap. 83).

² I.e. the Gorgodes (or Gorgones) of antiquity. They figure commonly in mediæval writings and maps: e.g. Lambert's "mappamundi" in *Liber Floridus*. It is by no means certain that they are identifiable with any of the Atlantic archipelagoes—certainly not with the Azores, which were unknown in classical times; cf. Antonio Galvão, *op. cit.* pp. 73-4.

S E C O N D B O O K

THE BEGINNING of the SECOND BOOK of the Esmeraldo De Situ Orbis, *describing the discoveries of the most serene Prince, King Afonso V of Portugal. Here follows, firstly, the Prologue.*

WE were greatly to be blamed did we not relate what we can remember of the things we have seen in our time and what we can with truth set forth, for those are still alive whose glory deserves to last as long as the knowledge of their great achievements endures; such princes deserve fame and praise befitting their deeds, and although this applies to all, it is especially true of those whose deeds are worthy of our notice. Therefore we must not forget the late most serene prince, King Afonso V of Portugal, for we have seen what an excellent and truly magnanimous man he was and what immortality he gained for himself, for which reasons his fame should be perpetuated. But since time and change obscure and obliterate our knowledge of things, we must make a record of this serene sire so that his fame may endure from generation to generation. For he ruled these realms for thirty-two years¹ in justice and equity and was not less praised for the feats of arms which he performed than in the government of the State which he ever greatly honoured. The truth compels us to assert that he was an eminent and exceedingly liberal-hearted man; Our Lord endowed him with such grace and nobility of character that he was universally loved by his subjects for his goodness. His fame spreading through many provinces and regions, the Holy Father Pope Pius II elected him as captain for the Church and Christendom of a large fleet which he was equipping against the Turks and

¹ From 1449 to 1481. King Duarte died in 1438 while Alfonso, the heir apparent, was still a boy of six. From 1438 to 1440 his mother was Regent and from 1440 to 1449 Prince Pedro, Duarte's brother.

for which he granted a holy indulgence and crusade¹. To celebrate this, this most serene King Afonso was the first in these realms to order the coining of "crusados" of fine gold to pay the men in this holy war. (The value of each crusado was originally 325 reis.) Owing, however, to the death of the Holy Father this expedition was not carried out.

In the service of God this virtuous Prince crossed the sea in person to Africa with a large fleet and army, and captured the town of Alcacere Ciguer from the Moors on the 19th of October in the year of Our Lord 1458². Later, on the 24th of August of the year 1471³, he captured the town of Arzila, the Moors sustaining a great loss of life; in their fear all the inhabitants of the very strong and ancient city of Tanger fled and left it desolate, whereupon this excellent prince ordered it to be taken and peopled. All of these things we saw, with many other great

¹ In 1453 Constantinople fell into the hands of the Turks; the Pope—Calixtus III (not Pius II as Pacheco seems to think)—fearing that worse was to follow, summoned all the princes of Europe to a general crusade against the infidels. In 1456 a special legate, the Bishop of Silves, was sent to Alfonso V by Calixtus with the bull of the crusade. The king warmly approved the plan and promised 12,000 men at his own cost. He also struck, with the view of making Portuguese money of more value in the foreign countries through which his march would lie, a new piece of gold money which had a cross on one side. This was the "crusado." In no country was enthusiasm for the defence of the Christian faith stronger than in Portugal: but the zeal which animated King Alfonso was inadequate, with his limited resources, to contend against the Turks, unless the Pope's appeal was warmly responded to by other sovereigns. Such, however, was not the case, for they failed to answer the rallying call, and after the death of Calixtus in 1458 the crusade came to nothing.

² As soon as it became apparent to Alfonso that no help would be forthcoming from other monarchs, he decided to carry his "crusaders" into Africa. His first intention was to attack Tangier, but eventually he made El-Qsar es Sgir his objective. He reached this town on 21 October (not 19th) 1458, and after a brief, but very decisive, engagement entered it on foot with his uncle Prince Henry. It was held against great odds for some ninety years (until 1549).

³ Alfonso's success at El-Qsar es Sgir encouraged him to dream of large African possessions and on more than one occasion between 1458 and 1471 he attempted to take Tangier without success. In 1471, however, the king decided to renew the crusade and attack Arzila. The city was taken without much difficulty but the Moors lost 2000 men and had some 5000 taken prisoner. One unexpected outcome of the capture of Arzila was the abandonment of Tangier. The inhabitants of that city finding themselves between two Portuguese strongholds decided to save their lives by fleeing before any possible attack might be launched upon them.

achievements, but it is vain to record in so base a style the deeds of so high a prince. We need only say that after the death of Prince Henry he succeeded to the enterprise of the Ethiopias of Guinea and ordered the discoveries to be continued beyond Serra Lyoa. In order that our memory of him might be the more enduring we have drawn here the "Rodizio"¹ which he used as his device, with his motto "Jamays." He died in the town of Sintra on the 28th of August in the year of Our Lord Jesus Christ 1481².

Chapter i

of the second book of the Esmeraldo De Situ Orbis.

Six leagues SSE of Cabo Ledo in Serra Lyoa appear three islets called Ilhas Bravas³, on the largest of which is an excellent spring of fresh water. From there onwards the coast forms a very large bay, twenty-five leagues round or more (as appears in the figure beyond the "Rodizio"), which we call Furna de Santa Anna; into this flow many rivers, the principal being called the Rio das Ganboas⁴; this river and the Ilhas Bravas lie E and W and occupy eight leagues of the route. At the mouth of this river is a great reef of rock which runs along the shore for a good half league; the channel of the river has a muddy bottom, with three fathoms at high tide. Small vessels can sail a league up it to a place called Harhouche, where some gold and slaves are bartered for bloodstones, brass bracelets, red cloth, linen, brass basins and other things of this kind. The whole of this Furna de

¹ Alfonso's device was a mill-wheel with drops of water scattered round it, symbolical of his love for his wife and regret at her death, which is further shown by the motto "Jamays": he could never forget her (E. Prestage, *op. cit.* p. 178). His wife, Isobel, whom he married in 1446 (or 1447) died in 1449 almost immediately after the death of her father, Don Pedro, Alfonso's uncle.

² The existing MSS. read 1471.

³ I.e. Banana Isles—"a group of three islands with the appearance, from a distance of 10 miles, of a few sharp peaks..." (*Africa Pilot*, Part 1, p. 275); hence the name "bravas" (meaning "wild").

⁴ I.e. Sherbro' River, the mouth of which is troubled by the Bengal Rocks and numerous shoals (*vide Africa Pilot*, Part 1, pp. 277-8).

Santa Anna is beset with many shallows of rock and sand¹, and a ship bound for Malagueta or Mina without having to touch here should take another course, according to the directions that follow. All the inhabitants of this country are called Boulooes.

Aqui mapa.

Item. If a ship of about thirty-five tons has to go from Cabo Ledo in Serra Lyoa to the coast of Malagueta or Mina it should sail SSW and will double Cabo de Santa Anna in eight or nine fathoms at a distance of six leagues from the shore; but a large ship should steer SW when it will be in twelve and fifteen fathoms, and when it is in thirty fathoms it must sail ESE; in this way it will arrive at a cape called Cabo do Monte which is thirty leagues beyond Cabo de Santa Anna. Thence one can sail to the coast of Malagueta or of Mina, as we shall explain below. This Cabo de Santa Anna is very low-lying land and has three islets² at its point; the land within the bay is intersected by an arm of the sea, which extends to Rio das Palmas, the cape thus forming an island called Turulo³. From Cabo Ledo in Serra Lyoa to this Cabo de Santa Anna is sixteen leagues and the latitude of this cape is 7° north⁴. The shape of this country will be seen from the illustration and painting.

Item. Cabo de Santa Anna and Rio das Palmas lie E and W and occupy twelve leagues of the route. The channel of this river changes two and three times a year⁵, so that I can say nothing certain about it; I can only state that it has many sand shallows at its mouth and that he who would enter must for safety's sake take soundings at its bar. Alternatively he may enter the Furna de Santa Anna by an arm of the sea running along the island of Turulo and so reach the said Rio das Palmas, as may be seen in our illustration and painting. The land to the SE at the mouth of this river is a little higher than that at the mouth of the other one we spoke of above. If he sails up this

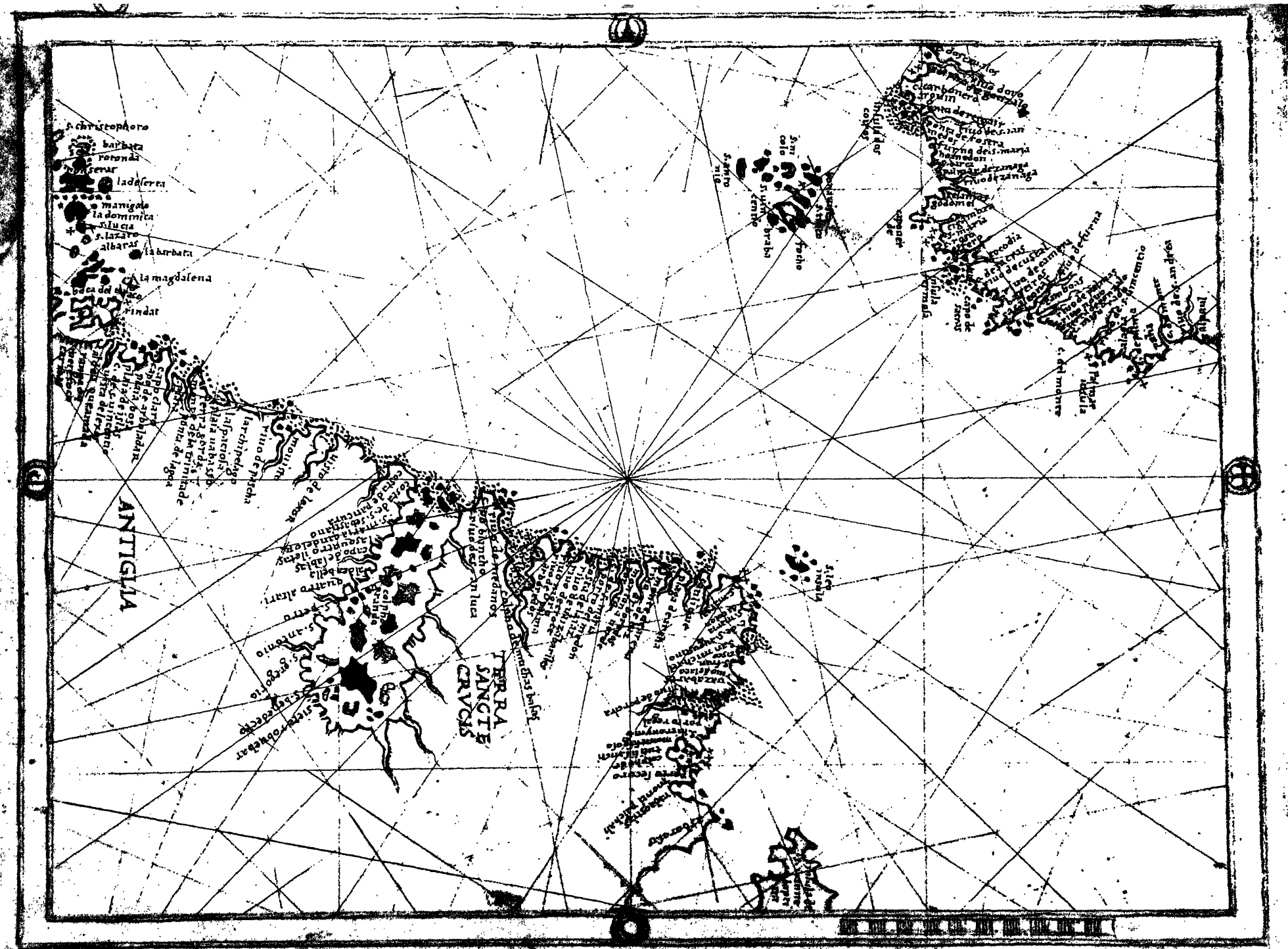
¹ I.e. the shoals of St Ann (*vide Africa Pilot*, Part I, p. 277).

² The three islets lying off Cape St Ann are the Turtle Islands.

³ I.e. Sherbro' Island; cf. S. Pimentel, *Arte Pratica*, p. 253, where the island is called Farulho.

⁴ Actually 7° 34' N. In his list of latitudes (book I, chap. 7) Pacheco gives the latitude as 7° 20'.

⁵ Cf. *Africa Pilot*, Part I, p. 282.



THE MIDDLE ATLANTIC COASTS ON AN ITALIAN CHART OF c. 1508

British Museum, Egerton MS. 2803

river for twenty-five leagues¹ in a small vessel of thirty or thirty-five tons, he will find seven villages, and beyond them a large town of five or six thousand inhabitants, called Quynamo². In two months here it is possible to obtain 1,500 doubloons for such merchandise as I mentioned in chapter 1³ and also for tin, which⁴ is much prized here. It is also possible to buy some slaves here for the same merchandise; but it is necessary to be on guard against the negroes of this country, for they are very evil people and attack our ships in great canoes. They are called Boullooes, and their country is rich in rice and other produce but very subject to fevers.

Chapter ii

Concerning the Rio das Galinhas [and the land beyond].

All the country from Rio das Palmas along the coast to Rio das Galinhas⁵ is very low and wooded; it is hot throughout the year. The winter begins in May and ends in October⁶, when there is much rain, but also sultry heat for, as Alfragano says, in the land of the Ethiopians winter and summer are the same in character⁷, the reason being that a part of Ethiopia lies on the Equator and a part near it; it is because of this that it is so hot. Rio das Galinhas and Rio das Palmas lie E by S and W by N and occupy twelve leagues of the route. But since this Rio das Galinhas yields no profit I will not make bold to speak of it.

Item. Rio das Galinhas and Cabo do Monte lie NW by W and SE by E and occupy fifteen leagues. This Cabo do Monte is

¹ Cf. *Africa Pilot*, Part 1, p. 282.

² Quimanora, in S. Pimentel, *op. cit.* p. 263.

³ Book II, chap. 1, para. i.

⁴ Text corrupt.

⁵ I.e. Gallinas River.

⁶ The word "winter" is unfortunate (as Pacheco appears to realise from the following statement), for the difference between the highest and lowest monthly mean temperatures is only 5° F. At Freetown the range is from 77·4° to 82·2°. The lowest temperatures occur during the rainy season, which commences in April and lasts until November. On the coast, e.g. at Freetown, as much as 175 inches fall during these months.

⁷ *Vide* book I, chap. 33, p. 100 note.

fairly high¹, and when it is seen to the NE by E, its summit appears as two; it is the only mountain on this coast. The sea round it is deep, with 45 and 50 fathoms a league from shore, the bottom being nearly all mud. Half a league beyond Cabo do Monte to the W is a river which we call Rio dos Monos², but others give it a different name. Although its mouth is fairly wide it cannot be seen unless one is close to the shore; the channel of this river is very shallow, with a depth of a span more than a fathom at high tide, so that only a very small vessel can enter it. Ascending it about thirty leagues you will come to a region called Coya³, whence comes all the gold to Serra Lyoa and its region; it is very fine gold of 23 carats. Salt is much prized here, but tin and other merchandise of similar value, much more. The people of this country are called Cobales.

Item. From Cabo do Monte to Cabo Mesurado is twelve leagues. Cabo Mesurado has the shape of a round hill, but when you are in front of it, it appears to be bifurcated, there being one hillock on one side, and another on the other. Its latitude is 6° 20' north of the Equator⁴ and the coast here runs NW by W and SE by E.

Item. From Cabo Mesurado to the forest of Santa Maria⁵ is two leagues; this forest is very large and dense, and at this point there begins the trade in "malagueta" (which, in Latin, is called "grana paradisy")⁶; and it continues for forty leagues along the coast.

Item. From the forest of Santa Maria to Rio de Sam Paulo⁷ is six leagues, and at this river gold of 23 carats quality is found,

¹ I.e. Cape Mount. According to Pedro de Sintra the cape was so named because he saw a very lofty mountain beyond it (*vide* Cadamosto, *op. cit.* pp. 191-2).

² I.e. Cape Mount River (*vide* *Africa Pilot*, Part 1, p. 284).

³ Chouxcha in S. Pimentel, *op. cit.* p. 263.

⁴ Actually Cape Mesurado is 6° 19' N.

⁵ Cf. *Africa Pilot*, Part 1, p. 286.

⁶ Maleguette pepper (the same as "guinea grains," "grains of Paradise" and "alligator pepper") is the seed of *Amomum Melegueta*, a plant of the ginger family: the seeds are exceedingly pungent and are used as a spice throughout central and northern Africa. John Pory (*op. cit.* p. 78) describes it thus: "a little red grain which there groweth, being in shape somewhat like to the millet of Italy, but of a most vehement and fiery taste."

⁷ I.e. St Paul River.

although in small quantity. At this point there commence some fairly high mountains which we call the mountains of Sam Paulo¹, because these mountains and this river were discovered on the day of the Apostle Sam Paulo; they run along the coast to the east for six or seven leagues at about two leagues' distance from the seashore. The landmark of the Rio de Sam Paulo is that it is at the beginning of these mountains; the coast runs NW and ESE, and the course is two leagues at sea from the mouth of this river.

Item. From Rio de S. Paulo to Rio do Junco² is six leagues. This river has an islet at its mouth; here, too, there is gold in small quantity and likewise malagueta.

Item. From Rio do Junco to Rio dos Cestos³ is twelve leagues; its name is due to the fact that the negroes of this country come to the ships to sell pepper (which is very good and fairly plentiful here) in baskets, which they do not do elsewhere on the coast where this pepper is sold. Ships should, for safety's sake, anchor in ten to twelve fathoms and so be on a muddy bottom a league from land opposite the mouth of this Rio dos Cestos; but at twenty to twenty-five fathoms the bottom is foul with rock. The mouth of this river is very small and is only visible by those entering the bay⁴ which the coast makes there; to the east there is a spur of rock which runs out as a reef into the sea and it is called Cabo das Baixas⁵. The latitude of the Rio dos Cestos is 5° 30' N of the Equator⁶. The inhabitants of this country and of twenty-five leagues or more beyond are called Zeguebos. Half a league beyond the mouth of this river, at the Cabo das Baixas of which we have spoken, there is a fairly dense grove of trees. Such are the landmarks of this river. In the same parallel lies the castle of S. Jorze da Mina. The Rio dos Cestos and the Rio do Junco lie SE by E and NW by W and occupy twelve leagues of the route.

¹ Cf. *Africa Pilot*, Part I, p. 286.

² I.e. Junk River.

³ This name is still retained; the word signifies large wicker-baskets.

⁴ I.e. Cestos Bay.

⁵ I.e. Cestos Reef.

⁶ Cestos Point is 5° 26' N.

Chapter iii

of the second book of the Esmeraldo De Situ Orbis.

For order and clearness in the series of landmarks and routes along this coast, we will describe in detail the places and such particulars concerning them as we may think good.

Item. Three leagues beyond the Rio dos Cestos is a small island a quarter of a league from land called Ilha da Palma¹, a name derived from the palm-tree which is still there in our day. We do not navigate between the island and the land, for conditions do not admit of it; but if anyone wishes to anchor here in a small vessel he may do so in ten fathoms nearly a league from shore on a clean bottom. Here he will be able to buy and barter slaves². . . which are called "guy" and also "nhunho." However, this is now ruined; when it was properly conducted one could buy a bushel of pepper for a brass bracelet weighing about half a pound, and a slave for two basins such as barbers use, but now a bushel of pepper is worth five or six bracelets and a slave four or five basins. The negroes of this coast are uncircumcised and naked, and are idolaters, having neither religion nor goodness; they are great fishermen and go two or three leagues out to sea to fish, in canoes which, in shape, are like weavers' shuttles³.

Item. From Ilha da Palma to Ilheos is two leagues. These islets are two in number⁴ and are completely bare, without soil or trees, and are very white from the guano of birds which sleep there. Round these islets are many very dangerous shoals of rock, some of them visible above water and some not; a large ship of eighty to a hundred tons should anchor in thirty-five fathoms a good league and a half from the shore, but a small

¹ I.e. Di Rock—the highest of several large rocks standing on Diabolitos Reef (*vide Africa Pilot*, Part I, p. 291).

² Judging by the context, this lacuna originally contained the words "and malagueta."

³ Cf. S. Pimentel, *op. cit.* p. 264.

⁴ The *Africa Pilot* speaks of several islets in this vicinity that constitute dangers to shipping. One of them is actually called White Rock (Part I, pp. 291-2).

ship may anchor at eight fathoms below these islets on a clean sandy bottom one league out at sea, which is the position of these islets. Whoever comes here should beware of anchoring in twenty to twenty-five fathoms, for the bottom is foul and he would lose his anchors. A prudent man will not trade on this coast from the beginning of May till the end of September, for the country is subject to tempestuous weather and great thunderstorms¹. A fair amount of pepper is found here and some slaves; these may be bartered for the merchandise which I have mentioned in previous chapters.

Item. From the said Ilheos to Cabo Feroso² is five leagues, and this cape does not run far out into the sea; like the rest of the coast it is densely wooded and is difficult to find for those who come in from the sea.

Item. From Cabo Feroso to Resguate do Genoês³ is three leagues; when King Afonso V ordered the discovery of this country a Genoese seaman who sailed in one of the ships was the first to land here and to barter for pepper, hence the name of this place—Resguate do Genoês⁴. Its landmark is a small wood of fairly tall trees, shaped like an eyebrow, high in the centre and pointed at the ends; here there is a very small river whose mouth is only visible when one is very near the land. Pepper and slaves can be obtained there in the way we have said. Anchorage can be had in fifteen fathoms on a clean bottom a little over half a league from land.

Item. From Resguate do Genoês to Rio de S. Vincente⁵ is three leagues. Between them there is a sharp point which runs

¹ The season of major rains along the Liberian coast begins in April and continues, with an interval of about a month in August during which there is less rain, until mid-November. Tornadoes are frequent throughout this period, and especially at the beginning and end of the rains.

² Sangwin Point (?), Wilson Point (?).

³ The coast between Baffu Point and Tassu Point (?) (*vide Africa Pilot*, Part I, p. 293). The discovery of this part of the coast was effected c. A.D. 1470. In 1469 Alfonso V "let out for yearly rent the trade of Guinea" to a wealthy citizen of Lisbon, Fernão Gomes, for five years, on condition that he should discover a 100 leagues of coast every year, starting from Sierra Leone. As a result of this agreement, a rapid advance was made eastwards and southwards. However, practically no details of the voyages have been preserved and their dates are uncertain.

⁴ I.e. "bartering-place of the Genoese."

⁵ I.e. Grand Butu River.

out into the sea¹; it is very rocky and has some trees. To the E of this point is the small river of which we have spoken; it is difficult to enter, because the sea is running into it most of the time, and boats from our ships entering it to take in water and wood have, on occasions, been lost. This river and Rio dos Cestos lie SE by E and NW by N and occupy fifteen leagues of the route. Pepper is found here.

Item. Four leagues along the coast beyond the Rio de S. Vincente is the Praya dos Escravos², which extends for two leagues or more; its name is derived from the fact that certain slaves were obtained by barter here when this land was discovered, but now it is a place of little barter because on the coast before and after it more pepper and slaves are found than on this part of the shore itself. In the year of Our Lord 1475 a ship was fitted out by Flemings in Flanders³, with a Castilian captain, who dared to sail with their merchandise to Mina seven or eight years before the castle of S. Jorze was built. They obtained five or six thousand doubloons, but as they did not fear the heavy excommunications of the Holy Fathers who granted to the Kings of Portugal that none of any other race than Portuguese with the permission of the Kings of Portugal should sail thither, and as they did not fear the prohibitions of the Holy Mother Church, God gave them a bad end; for on their return voyage from Mina, when they were opposite this Praya dos Escravos, as the wind was then calm and in the west they anchored in twenty-five fathoms; but as the bottom along all this coast is full of rock it cut through their hawser during the night, and a wind blowing up from the sea drove their ship on to the beach, where it was wrecked. The negroes there ate the thirty-five Flemings who

¹ I.e. Grand Butu Point (*vide Africa Pilot*, Part I, p. 295).

² Sinu Bay (?).

³ Notwithstanding the grants made by successive Popes to the Kings of Portugal of the exclusive rights to the lands and seas discovered to the south, vessels of other nations carried on "poaching" expeditions along the Guinea coast. Spanish rivalry was especially keen and led to some sharp diplomatic exchanges between the two Cortes. Written agreements proving to be mere "scraps of paper," Alfonso V finally decreed in 1480 that the crews of foreign vessels found in the sphere granted to him by Papal bulls should be thrown into the sea (*vide Alguns Documentos...*, p. 45). Judging by the embassy sent by John II of Portugal to Edward IV in 1482, it would appear that the English were already interested in maritime enterprise along the African coast.

formed the crew. We learnt this from the negroes themselves and from Pedro Gonçalves Neto¹, who in the following year went there as captain of a ship and obtained in barter nearly all the gold which the Flemings had with them and some of their clothes.

Item. From Praya dos Escravos to Lagea² is seven leagues, and all this coast from Rio de S. Vincente to Lagea lies WNW and ESE. Lagea is a huge rock more than a bowshot long and half a bowshot wide and is a little over a quarter of a league distant from the shore. This is the best place for pepper along the whole of this coast, and the landmarks are the rock itself and the land beyond it, which has the appearance of a great tall wood. The ship that would trade here should anchor at ten or twelve fathoms on a muddy bottom, but should beware of anchoring at twenty or twenty-five fathoms, for it is all rock and the anchors will be lost. The negroes of all this coast bring pepper for barter to the ships in the canoes in which they go out fishing. They are naked and are not circumcised, and they are idolaters, being heathens.

Item. From Lagea to Cabo de S. Cremente³ is five leagues; this part of the coast runs WNW and ESE. The cape is densely wooded and does not run far into the sea. There is a little pepper here. All the negroes of the coast are idolaters and are not circumcised; they are vicious people and seldom at peace.

Item. From Cabo de S. Cremente to Cabo das Palmas is ten leagues, and the route lies E and W. He who leaves the shore at Cabo de S. Cremente for Cabo das Palmas must sail E by S in order to be safe. This Cabo das Palmas⁴ forms a slender pro-

¹ Possibly one of Fernão Gomes's captains. Palencia in his *Chronicle of Henry IV of Castille* (vol. IV, pp. 205 *et seq.*, Paz y Melia's edition, 1908) tells us that in 1476 Prince John cancelled Gomes's contract, owing to the incursions of the Spanish expeditions, which interfered with his (Gomes's) monopoly, and decided to send him to Guinea with a fleet of twenty sail to bring back gold dust and slaves before the Andalusian fleet, which they were expecting to encounter, could start. This expedition appears to have been eminently gratifying to the Portuguese, but the details are wanting.

² Druta Rock (?) (*vide Africa Pilot*, Part I, p. 299).

³ Subbubo Point (?) (*vide Africa Pilot*, Part I, p. 300).

⁴ Cape Palmas (4° 22' N.) is actually fronted by a small island—Russwurm Island—which, however, is "difficult to distinguish against the cape" (*vide Africa Pilot*, Part I, p. 306).

montory which extends seawards a considerable distance and has a row of palm-trees; out to sea about a league from this cape are two very dangerous shallows of rock over which the sea breaks. The latitude of this cape is $4^{\circ} 10' N$ of the Equator. Beyond it the coast turns ENE, and these are the signs by which one can distinguish the cape, the chief being its latitude. On the mainland at the extremity of this cape is a spring of good fresh water; sometimes in case of necessity we take in water at a sandy bay situated behind this cape to the W. He who enters here need not fear to sail between the two shallows and the shore, for everywhere there is a clean bottom with twelve or thirteen fathoms of water. From the month of September to the end of March and for some months after the sea runs past this cape eastwards and eastnortheastwards so strongly¹ that ships bound from Mina to Portugal cannot double it unless a gust of favourable wind blows from the stern or hatchway. We therefore steer a course WSW to avoid the coast of Malagueta, which ends in Cabo das Palmas. Two leagues beyond this cape the land runs out into a rugged promontory² with spurs of rock covered with trees; it projects seawards as far as, or farther than, Cabo das Palmas, and here there is a village which we have called "Aldea de Portugal." The natives of Cabo das Palmas are called Eguorebo³.

Chapter iv

Concerning the routes and landmarks from Cabo das Palmas to the Castle of S. Jorge da Mina.

We must notice the difference in the direction of the coast beyond Cabo das Palmas, for beyond this cape it runs in one direction, and on this side of the cape, along the coast of Malagueta, in another: any pilot going to these parts should observe this and the latitude of this cape, and he will then make no

¹ Cf. *Africa Pilot*, Part I, pp. 307, 310.

² I.e. Growa Point.

³ Siguorebo in S. Pimentel, *op. cit.* p. 266.

mistake, even if he does not know this country as we now know it after the experience of many years.

Item. Eight leagues beyond Cabo das Palmas is a river called Rio de S. Pedro¹; they lie WSW and ENE. This river has a small mouth, but as we are not accustomed to enter it and have no practical knowledge of it, we will therefore not write about that which is unknown to us, although the coast itself we have come to know well enough from years of experience.

Item. From Rio de S. Pedro to Rio de S. André is twenty-five leagues, and between them is a narrow cape, called Cabo da Praya², which has on the W side some fields called "the rice fields." Farther on the land forms a bay³ having a broad headland at its entrance and a white rock like an islet standing in the sea⁴. All this coast is inhabited. A little beyond this bay along the sea are six or seven hills⁵; these are eight leagues distant from Rio de S. André. The coast lies W by S and E by N. Rio de S. André⁶ has a wide mouth, and when opposite it you can see above its mouth some trees in the interior which look like pine-trees; half a league up the river there is an island in mid-stream. From the ricefields to this river you will find a muddy bottom with some patches of sand if you anchor half a league from the shore in twenty fathoms; at a league from land the depth is fifty fathoms. But as we have not yet had any experience or traffic at this Rio de S. André we will say no more of it here, except that we have learnt that the country is densely populated and this river, like all the other rivers of Guinea, is rife with fever.

Item. Three leagues beyond the Rio de S. André you find tall red cliffs⁷ along the coast, extending for four or five leagues; these lie E and W with respect to the river and are composed of very red clay and are the landmark for the said R. de S. André.

Item. From the red cliffs to Rio d'Alagoua⁸ is eight leagues, and the coast lies W by S and E by N. The landmarks of this

¹ Name retained to the present day.

² Drewin (or Moncho) Point (*vide Africa Pilot*, Part 1, p. 316).

³ Victoria Gulf (or Bay) (*vide Africa Pilot*, Part 1, p. 316).

⁴ Boulakba Rocks (*vide Africa Pilot*, Part 1, p. 316).

⁵ The Drewin Highland. ⁶ Sassandra (or St Andrew) River.

⁷ Cf. *Africa Pilot*, Part 1, p. 319. ⁸ I.e. Lahu River.

Rio d'Alagua are a wood, like a pinewood, above its mouth in the interior, and the fact that this river flows along the coast till it reaches a village¹ where in our day there are four palm-trees, each standing apart by itself; on the farther side of this village is a very large lake, which you cannot see unless you climb the ship's mast. All this coast has a good clean bottom as far as Cabo das Tres Pontas; we do not know if there is any commerce here.

Item. Seven leagues beyond Rio d'Alagua there are seven villages, which are very well populated, extending seven or eight leagues along the coast; the coast runs E and W and is composed entirely of beach of a reddish sand. The country is densely wooded and the depth near the shore is thirty to forty fathoms, but it is less than this two leagues out at sea. The negroes of this coast are great fishermen and their canoes have fo'castles. They wear hooded caps like those of shepherds; they go naked and are idolaters. We call them "Beçudos²." They are evil people and there is no commerce here.

Item. From the seven villages to Rio de Mayo³ is twelve leagues; the mouth of this river is not large and the country round it is very low, marshy and well-wooded. We know nothing of what trade there may be in this country, but only know that it is densely populated.

Item. From Rio de Mayo to Rio de Soeyro⁴ is ten leagues. This Rio de Soeyro was discovered by Soeyro da Costa at the bidding of King Afonso V. Whoever sails from the shore past the seven villages to this Rio de Soeyro, must sail E by S, close in to the shore, and by this course he will not go wrong.

Item. From Rio de Soeyro to the Serra de Santa Apolonia⁵ is twelve leagues; the coast lies WNW and ESE. Six leagues beyond these hills you will see a fortress⁶ which Our Lord King

¹ Grand Lahu (?) (*vide Africa Pilot*, Part I, p. 320).

² I.e. "the thick-lipped."

³ I.e. Komoë River.

⁴ I.e. Assini River: to this day the hills behind the mouth of this river are called after da Costa, who was one of the captains employed by Fernão Gomes during the period of his Guinea trading lease.

⁵ Cf. *Africa Pilot*, Part I, p. 325.

⁶ A fort—St Anthony's—still commands the bay in which the port of Axim is situated.

Manuel ordered to be built, where yearly there is obtained in barter thirty to forty thousand doubloons of good gold. The country is called Axem and is very subject to fever. The merchandise exchanged for gold consists of brass bracelets, basins of the same metal, red and blue cloth, linen neither very coarse nor very fine, and "lanbens," that is, a kind of mantle made like the shawls of Alentejo, with stripes of red, green, blue and white, the stripes being two or three inches wide. They are made in the city of Ouram¹ and in Tenez² in the kingdom of Tremecem, in Bona³ and Estora⁴ of the kingdom of Bogia, and also in Tunez⁵ and in other parts of Berbery. This is the principal merchandise used for the barter of gold in Axem, besides other articles of less value.

To continue our description of the Serra de Santa Apolonia; it is not as high as the ignorant may imagine, but consists of eight or ten hills of reasonable height on the coast, covered with woods. However, because the rest of the country is very low these hills seem quite high. He who leaves Cabo das Palmas for the castle of S. Jorze da Mina should sail E by N; at 130 leagues along the route he will find the Serra de Santa Apolonia opposite him; in order not to lose his way his correct course will lie outside the bay.

Item. The Serra de Santa Apolonia and Cabo das Tres Pontas⁶ lie NW by W and SE by E and they occupy fifteen leagues of the route. One may anchor opposite this Serra in twenty fathoms on a muddy bottom a league from the shore. Twelve leagues beyond this Serra is an islet close to the mainland; it is very rugged and white with the guano of birds. A little over half a league from this islet is an island near to the coast; this island has a tree in its centre and on the side on which the sea beats it is of a reddish colour. From there to Cabo das Tres Pontas is three leagues. I do not know why this cape was called thus, for there are six or seven points, on all of which the sea beats; they are all of broken rock, and he who doubles the

¹ I.e. Oran: cf. Leo Africanus, *op. cit.* book IV, p. 676.

² Cf. Leo Africanus, *op. cit.* p. 680.

³ Cf. *ibid.* p. 709.

⁴ I.e. Stora in Argelia in the province of Constantina, to the northwest of Philippeville.

⁵ Cf. Leo Africanus, *op. cit.* p. 719.

⁶ I.e. Cape Three Points.

central point doubles them all. The landmarks of this cape are that the coast there turns to the NE and that its latitude is $4^{\circ} 30' N^1$. The pilot or captain who is ignorant of this country should observe the trend of the coast and he will find that it follows two directions: from Cabo das Tres Pontas to Serra de Santa Apolonia it lies NW by W and SE by E; and from there it trends NE, the latitude increasing.

Item. From Cabo das Tres Pontas to the islets of Anda² is four leagues; the coast runs SW and NE, and these islands are very close to the shore; in the same neighbourhood there are some red cliffs. The region of Anda extends for seven or eight leagues; it contains a gold mine, which although not very large, yields 20,000 doubloons or more; the gold is taken to be bartered at the Castle of S. Jorze da Mina and at the fortress of Axem of which we have spoken above. The negroes of this country live on millet, fish and yams, together with a little meat; they are naked from the waist up, are uncircumcised and heathen, but, God willing, they will soon become Christians.

Item. The islet of Anda and the Rio de Sam Joham³ lie SW and NE and occupy eight leagues of the route. This river is very small and narrow; there is only a fathom and a half at its mouth at high tide, and its mouth cannot be seen until one is quite close to it. There is here a town called Samaa⁴ of some 500 inhabitants, where the first gold in this country was obtained in barter, and it was at that time called Mina. It was discovered at the bidding of King Afonso V by Joham de Santarem and Pedro d'Escobar⁵, knights of his household, in the month of January of the year of Our Lord 1471. These captains carried as pilots a certain Alvaro Estevez, an inhabitant of the town of Lagos, and a certain Martim Estevez, citizen of Lisbon, Alvaro Estevez being the man most skilled in his profession in Spain at that time. The landmark of the Rio de S. Joham and of the

¹ Actually $4^{\circ} 46' N$.

² Abokori Islet (?).

³ Pra River. It enters the sea in Shama Bay.

⁴ I.e. Shama which, to-day, has a population of about 2400 (*vide Africa Pilot*, Part I, p. 337).

⁵ These men, like Sæiro da Costa, were chosen by Fernão Gomes to forward the exploration of West Africa. Pedro d'Escobar subsequently accompanied Diogo Cão to the Congo and acted as one of Vasco da Gama's pilots on his first voyage to India.

town of Samaa is a very large bay over two leagues in circuit and a good league across from point to point; almost in the centre of the bay is the mouth of the river. This bay is full of shallows and a ship should anchor in ten or twelve fathoms on a clean sandy bottom a league from the shore and not go farther in.

Item. From the bay of Samaa to the village of Torto is three leagues; the route lies WSW and ENE. The lord of this village was squint-eyed, hence its name. It has a great reef of rock on which the sea breaks violently¹, running more than half a league into the sea, so that one should keep well out. From here to the castle of S. Jorze da Mina is three leagues.

Chapter v

Concerning the Castle of S. Jorze da Mina and when it was built.

In the paragraph before last we related how the excellent prince, King Afonso V ordered the discovery of Mina and what captains and pilots he sent for the purpose. We must now tell how his son the most serene prince, King John of Portugal after the death of his father ordered the foundation of the Castle of S. Jorze da Mina. At the bidding of this magnanimous prince it was built by Dieguo d'Azambuja², a knight of his household

¹ Kassi Reefs (?) (*vide Africa Pilot*, Part I, p. 338).

² John II lost no time in promoting Portugal's Africa enterprise on his accession in 1481. Two of the first things he did were to give orders for the completion of the fort of Arguim (begun in Alfonso's reign) and authorise the construction of another at Mina (i.e. Elmina Castle) for the purpose, mainly, of organising the gold traffic of that region. This second undertaking was regarded by many of the members of his Council as untimely and doomed to failure on the grounds of climate, distance from Portugal and the incalculable attitude of the negro. Notwithstanding, John went ahead with his plans and entrusted the execution of them to Diogo d'Azambuja "who combined the aptitudes of a diplomat, a general and an engineer" (*vide E. Prestage, op. cit.* p. 199). The work of building the fort began almost immediately after his arrival in 1482: in fact, within twenty days the central tower was sufficiently near completion to be available for defensive purposes. (This speed was made possible by the fact that the stones for the tower had been cut and fashioned in Portugal.) Azambuja remained at Mina for two and a half years, by which time the trade of the fort was enjoying the prosperity alluded to in Pacheco's account. In 1486 John II bestowed on Mina the status of municipality and added "Lord of Guinea" to his titles.

and High Commander of the Order of S. Bento. On the 1st of January in the year of Our Lord 1482 he took with him nine caravels, each with its captain, very honourable men, under his command, together with two urcas of 400 tons laden with lime and building stone and other material for this work. There was much trouble with the negroes, who wished to prevent the work, but it was finally finished, despite them, with all diligence and zeal, and it was necessary for the refuge and defence of all of us. At a later date the same King John, seeing that this was necessary, ordered the work to be added to. This, as we know, was the first stone building in the region of the Ethiopias of Guinea since the creation of the world. Through this fortress trade so greatly increased by the favour of Our Lord that 170,000 doubloons of good fine gold, and sometimes much more, are yearly brought thence to these realms of Portugal; it is bartered from the negro merchants who bring it thither from distant lands. These merchants belong to various tribes; the Bremus¹, Atis², Hacanys³, Boroës⁴, Mandinguas⁵, Cacres⁶, Andeses or Souzos⁷, and many others which I omit for the sake of brevity. In exchange they take away much merchandise, such as "lanbens," which is the principal article of commerce (we described this in the ninth paragraph of the fourth chapter of this second book), red and blue cloth, brass bracelets, handkerchiefs, corals, and certain red shells which they prize as we prize precious stones; white wine is also greatly prized, and blue beads, which they call "coris," and many other articles of various kinds. These people have hitherto been heathen, but some of them have now become Christians; I speak of those who dwell near the castle, for the merchants come from far and have not the same intercourse with us as these neighbours and accordingly continue in their

¹ The Ebrié tribes of the Ivory Coast (?).

² The Attié tribes located inland from the Ebrié tribes (?).

³ I.e. the Akans who at the present time inhabit both Gold Coast and Ashanti territory (*vide* A. W. Cardinall, *The Gold Coast*, 1931, p. 9).

⁴ The natives of the Bouré gold-mining region in the upper Niger (?).

⁵ *Vide* book I, chap. 24, p. 73 note.

⁶ I cannot find this name, even in a modified form, either in geographical or in ethnographical sources.

⁷ The Susu (or Soso or Soussou) peoples of the Fouta Djallon Mountains (*vide* M. Delafosse, *op. cit.* p. 55 *et passim*).

false idolatry. The profit of this trade is five for one, or more, but the country is much subject to fever, and white men often die here. The latitude of this castle is $5^{\circ} 30' N$ of the Equator¹, and on a clear night one can see the Pole Star elevated the same number of degrees above the horizon. For a clearer understanding we have given here a painting from sight of the castle, as it appears at the present time. Here there is an abundance of fish, upon which the negroes live², but they keep few cattle; however, there are many wild beasts such as ounces, elephants, buffaloes, gazelles and many other kinds, and also birds of various kinds, some of them being very beautiful. The negroes in this country go about naked, save for a loin-cloth or a piece of striped cloth, which they consider a very noble garment. They live on millet and palm-wine³ (though they prefer our wine) with fish and a little game². Our lord the King sends out yearly twelve small vessels laden with merchandise; these bring back to this realm the gold which the factor of his Highness obtains there by barter. Besides these vessels, three or four ships go out laden with provisions, wine and other articles which are needed there. The merchants who bring the gold to this fortress bring no asses or beasts of burden to carry away the merchandise, which they buy for three times and more its value in Portugal. Our people who are sent out by the most serene King in his ships buy slaves² 200 leagues beyond the castle, by² rivers where there is a very large city called Beny⁴, whence they are brought thither [to Mina?]. What we have said of this is sufficient for our purpose, [which] solely concerns the commerce² of our lord the King⁵.

¹ Actually $5^{\circ} 05' N$.

² The text is either slightly corrupt or has small lacunae at these points.

³ *Vide* Roger Barlow, *op. cit.* p. 106, for a description of the method of collecting and making this wine.

⁴ *Vide* book II, chap. 7.

⁵ Judging from Pacheco's reference higher up to a painting of the castle of La Mina it would seem as though the copyist forgot to insert the words "aqui mapa" at this juncture.

Chapter vi

*Concerning the routes and landmarks beyond the
Castle of S. Jorze da Mina.*

We may well speak of the things of Ethiopia since we have seen them, for before we had experience of them it was only with great difficulty that we could believe what some writers related concerning them. Since we have described the coast in due order, together with some part of the interior, we will proceed on our way and inform our readers how that three leagues beyond the Castle of S. Jorze at the end of the bay there is a promontory which we call Cabo do Corço¹; its extremity is round and has a single tree on it, which can only be seen when one is near the shore. It can be seen in our drawing of the castle given above.

Item. Twenty leagues beyond Cabo do Corço is a promontory which we call Cabo das Redes², because of the many nets that were found here when this land was discovered. This is the last place on this coast where we know that there is gold, and it is much finer gold than that which the merchants take to be bartered at Mina. The inhabitants of Cabo das Redes take yearly ten or twelve thousand doubloons of this gold to barter at the Castle of S. Jorze; five to six thousand doubloons of it is gold of 23 carats, one carat finer than the other gold there. Cabo do Corço and Cabo das Redes lie SW by W and NE by E, and they occupy twenty leagues of the route. All the country between these two capes is fairly high and mountainous; midway along there are three fishing settlements, Fante³ the Greater, Fante the Less and Sabuu the Less. At the end of this rough hill country lies Cabo das Redes. The negroes of this country speak the same language as those of Mina, and their word for gold is "vyqua."

Item. As soon as you have passed the high country in which Cabo das Redes is located the land becomes very low again and

¹ I.e. Queen Anne Point.

² Fetta Point (*vide Africa Pilot*, Part I, p. 345).

³ Fetta, located at the head of Fetta Bay.

the littoral is entirely composed of beach. Five leagues inland a single high mountain¹ rises from the lowland: it is the landmark for Cabo das Redes and we call it "Pam de Não." Twenty leagues beyond this mountain is the Rio da Volta², which is fairly large. Cabo das Redes and this river lie E and W. This coast is densely wooded, but in the flat country the woodland is sparse and thin, growing in clumps. This region is called Mumu. The negroes of this country are evil and eat men, and hitherto we have had no traffic with them.

Chapter vii

Concerning the country beyond Rio da Volta.

Item. From Rio da Volta, about which we have spoken above, to Cabo de S. Paulo³ is ten leagues; they lie NW by W and SE by E. The land in the neighbourhood of this cape is very low and has a long spit of sand running far out into the sea. He who leaves Mina for this part should stand three or four leagues out to sea from Cabo do Corço and sail ENE and he will come to the Rio da Volta, forty-five leagues along the route.

Item. Cabo de S. Paulo and Rio do Lago⁴ lie ENE and WSW and occupy sixty-five leagues of the route. All the country between them is very low⁵, with clumps of woodland, and the shore is composed entirely of beach. There are on this coast certain villages, trees and landmarks which some books of navigation mention, but I omit them because they are difficult to recognise. The pilot who sails from Mina to the Rio do Lago should make for Cabo de S. Paulo and then sail ENE along the coast; in this way he will make this river's mouth, which is very small. The channel has two fathoms at high tide, but its entrance

¹ Akem Peak (?) (*vide Africa Pilot*, Part 1, p. 345).

² It is still called by this name.

³ I.e. Cape St Paul. Cf. *Africa Pilot*, Part 1, p. 354.

⁴ This is not so much a river as a passage "6 miles long connecting Lagos lagoon with the sea" (*vide Africa Pilot*, Part 1, p. 360).

⁵ Cf. *ibid.* p. 351.

is very dangerous, with shallows of sand on which the sea breaks during the greater part of the year, so that the channel is scarcely seen; only small vessels of thirty to thirty-five tons can enter it. Once inside the mouth it broadens out into a great lake over two leagues wide and as many long. Twelve or thirteen leagues up this river is a very large city called Geebuu¹, surrounded by a great moat. The river of this country in our time is called Agusale², and the trade is mainly in slaves (who are sold for twelve or fifteen brass bracelets each) but there is some ivory. The latitude of the river is 7° 45' N of the Equator³.

Item. Rio do Lago and Rio Primeiro lie W by N and E by S and occupy twenty-five leagues of the route. Rio Primeiro⁴ has a fairly wide mouth half a league across, with a dense wood on its SE side. Four leagues beyond this river are three canals, and the coast of these canals along the sea to the Rio Primeiro is all mud, there being no sand. This country yields no trade or profit. The whole of the territory from the aforesaid Rio do Lago to this Rio Primeiro and for more than a 100 leagues⁵ beyond is intersected by many other rivers, so that it is cut into islands. It is greatly subject to fever and is very hot throughout nearly the whole of the year, because it is so near the orb of the sun; the principal winter season falls in the months of August and September, when there is much rain⁶. The negroes of this

¹ I.e. Abeokuta, situated 36 miles up the Ogun River, which drains into the Lagos lagoon. Cf. R. Burton's description in *Abeokuta and the Camaroons Mountains*, pp. 69-70.

² I.e. Ogun River.

³ The mouth of the lagoon is 6° 35' N.

⁴ The *Africa Pilot* speaks of no river between the entrance to the Lagos lagoon and Benin River. There are, however, one or two openings into this lagoon which runs parallel to this stretch of coast.

⁵ This is approximately the width of the Niger Delta (*vide Africa Pilot*, Part I, p. 368).

⁶ The seasons of the year in this country are divisible into "dry" and "wet" rather than into summer and winter. December, January, February and March are the driest months and, as is commonly the case in tropical latitudes, the driest months are the hottest. At Lagos the mean monthly temperature for these months is 81° F., the rainfall aggregate being 8 in. out of a total of 72 in. per annum. The season of heavy rains begins towards the end of April and continues until October, more than 50 per cent of the annual amount falling in the three months of May, June and July. The lowest mean monthly temperature is recorded in August (75.7° F.), by which month the cooling influence of the rains is at its maximum.

country are idolaters and are circumcised without having any law or reason for their circumcision, but as these matters are irrelevant we will not write of them.

Item. Beyond the Rio Primeiro is the Rio Feroso¹; they lie NW and SE and occupy five leagues of the route. (Of another small river here I do not speak as it is unnecessary.) The mouth of the Rio Feroso is very large, over a league across from point to point. The country to the SE of it has a grove of trees so even in height that no one tree seems higher than another; inside its mouth on the right is a very tall, branching tree which greatly overtops the rest, and beyond this tree are two other trees equally tall. The mouth of this river is shallow and full of hidden rocks; the depth is nowhere greater than two fathoms and two spans; the bottom is all loose mud, so that a ship can stay at half a fathom without receiving injury. This shallow extends into the sea nearly two leagues, and the entrance and the channel are along the shore to the left; when you are inside the points where the channel is narrowest, beyond a sandy beach on the right, you can anchor at the mouth of a large canal there, in eight fathoms. By this channel towards the sea is a village called Teebuu² and on the other side are some more villages. A league up this river on the left two tributaries enter the main stream: if you ascend the second of these for twelve leagues you find a town called Huguatoo³, of some 2,000 inhabitants; this is the harbour of the great city of Beny, which lies nine leagues in the interior with a good road [between them]. Small ships of fifty tons can go as far as Huguatoo. This city is about a league long from gate to gate; it has no wall but is surrounded by a large moat, very wide and deep, which suffices for its defence. I was there four times. Its houses are made of mud-

¹ I.e. Benin River (*vide Africa Pilot*, Part I, pp. 369 *et seq.*).

² The *Africa Pilot* speaks of numerous riparian settlements, but their identification with Teebuu is uncertain. S. Pimentel (*op. cit.* p. 284) calls it Atambane. Fishtown is the most important native village in this vicinity to-day.

³ I.e. Gwato (6° 11' N., 5° 23' E.), the Gurte of John Pory, *op. cit.* p. 78. Its prosperity appears to have declined with the abolition of the slave trade, for when R. Burton visited it in 1862 Gwato only contained "from 20 to 30 inhabitations, mostly ruinous but sometimes showing traces of former splendour" ("My Wanderings in West Africa," *Fraser's Magazine*, 1863, p. 275).

walls covered with palm leaves. The kingdom of Beny is about eighty leagues long and forty wide¹; it is usually at war with its neighbours and takes many captives, whom we buy at twelve or fifteen brass bracelets each, or for copper bracelets which they prize more²; from there the slaves are brought to the castle of S. Jorze da Mina where they are sold for gold. The way of life of these people is full of abuses and witchcraft and idolatry, which for brevity's sake I omit.

Item. A hundred leagues to the east of this kingdom of Beny in the interior we know of a land which in our time has a king called Licosaguou³; he is said to be lord of many peoples and very powerful. Close by is another great lord of the name of Hooguanee⁴, who among the negroes is as the Pope among us. In these lands there is black pepper much stronger than that of India⁵; its grain is almost of the same size, but whereas the

¹ Cf. O. Dapper, *Naukeurige Beschrijvinge der Afrikaensche Gewesten*, 1668, book II, p. 122. "How far the Kingdom of Benin extends from south to north is as yet unknown, as some places lie at a great distance from each other, being separated by impenetrable forests, but from east to west, it measures about a hundred (Dutch) miles." Barbot, writing later, in 1732, says: "its extent from north to south must be near 200 leagues and its breadth from east to west about 125 leagues. . ." (*A Description of the Coasts of North and South Guinea*, p. 356).

² Bracelets ("manilha" in Portuguese) still form a medium of change in some parts of Benin. "It is said that in some cases the natives are so particular that they test the manilha by its sound when struck together, which they do behind the traders' backs and that therefore the mixing of the metal has to be carefully attended to" (H. L. Roth, *Great Benin: Its Customs, Arts and Horrors*, p. 5, note).

³ According to Dapper (*op. cit.* book II, p. 121) the kingdom of Benin was bounded on the east by the kingdoms of Istanna and Forkado or Ouwerre.

⁴ The Ogané of John Alfonso de Aveiro (*vide* Barros, *op. cit.* Decade I, book III, chap. 4). The account which he brought back from Benin of this monarch tallied so well with the stories of Prester John which had been brought to the peninsula by Abyssinian priests that the king, John II, immediately began to plan how he might get into direct touch with Ogané, for he saw how greatly his double object of spreading the Christian faith and extending his commerce by opening the road to the Indies would be furthered by an alliance with such a sovereign. Accordingly he determined that both by land and sea attempts should be made to reach his country. The expeditions of Bartholomew Dias and of Pedro de Covilham were the result.

⁵ Barros (*op. cit.* Decade I, book III, chap. 3) describes the pepper of Benin thus: "tailed pepper [so called] because it is different from that which comes from India. . . having attached to it part of the peduncle on which it grows." It is actually the dried fruit of *Piper Clusii*, a plant widely distributed in tropical Africa.

Indian grain is wrinkled the surface of this pepper is smooth. In the mountains and woods of this region dwell savage men whom the negroes of Beny call "oosaa." They are very strong and are covered with bristles like pigs; their nature is entirely human except that instead of speaking they shout¹. I have heard their shouts at night and possess the skin of one of these savages. In this country there are many elephants whose tusks, or ivory as we call it, we often buy; there are also many ounces and other wild beasts, likewise birds of kinds so different from those of our Europe that on the first discovery of this country those who saw these things and related them were not believed, until the experience of those who came here later induced belief. A hundred leagues upstream towards the source of the Rio Feroso is a negro country called Opuu². Here there is much pepper and ivory and some slaves. The latitude of Rio Feroso is 7° north of the Equator³; the tide flows NW and SE, contrary to those of Spain. The people of Beny and its neighbourhood are branded with a line above the eyebrows⁴; it is their distinguishing mark as none of the other negroes have it.

Chapter viii

of the second book of the Esmeraldo De Situ Orbis.

This description of Ethiopia has brought us two liabilities; in the first place the amount of time spent in exploring these provinces and lands which have entailed so much illness and

¹ *Vide* note on book I, chap. 33.

² Possibly one of the kingdoms of which Dapper speaks: "the kingdom of Benin...is bordered to the NW by the kingdoms of Ulkami, Jaboe, Isago and Oedobo; to the north by that of Gaboe, situated about an eight days' journey above the great town of Benin" (*op. cit.* book II, p. 121).

³ Actually its mouth is 5° 46' N.

⁴ Cf. Richard Burton's account. In writing of the tribal marks of the people of Benin he says: "the general mark was a tattoo of three parallel cuts about $\frac{1}{2}$ " long and placed close together upon both cheeks...Some added to these...vertical lines of similar marks above the eyebrows..." (*op. cit.* p. 411).

ill-rewarded labour¹; in the second place the great toil of composing this work dealing with what we have seen in these lands. Therefore we must needs follow the order of the coast and describe the rivers, bearing witness to what we have seen and our witness is true.

Item. Five leagues beyond Rio Famoso is a river with a fairly large mouth, which we call Rio dos Escravos². Two slaves were obtained by barter there when it was discovered; hence its name. This river has shallows of hard sand running out nearly a league into the sea, with two and a half fathoms of water over them and three fathoms at the deepest. It is a very dangerous place, and a prudent man will avoid it; there is neither trade here nor anything else worthy of mention, so that we need not waste time in speaking of it.

Item. Five leagues beyond Rio dos Escravos is another river called Rio dos Forcados³; its name is due to the fact that when it was discovered many large birds were found here with tails forked like those of swallows. This river has a large mouth, and to the NW it has a sand shallow with about two fathoms of water, and on the SE it has a shoal of rock on which the sea breaks; in between these is the channel, which has a mud bottom, with three and a half fathoms, and at high tide four fathoms. He who has to enter here should keep closer to the shallows on the SE than to those on the NW in order to enter in safety. The tide of this river flows NW by W and SE by E; its latitude is 5° 10' N⁴. To the SE there is a large wood, its landmark being two trees taller than the rest. Whoever enters this river will find that it branches to the right and to the left; five leagues up the left branch is a place of barter⁵, which consists chiefly of slaves and cotton cloths, with some panther skins, palm-oil and some blue shells with red stripes which they call "coris." These and other things we buy there for brass and copper bracelets; they are all

¹ The translation of this paragraph is of necessity rather free as the text is very corrupt.

² Cf. *Africa Pilot*, Part 1, p. 374.

³ The Forcados River is the most useful and accessible distributary of the Niger Delta.

⁴ The latitude of Hughes Point, which defines the entrance on the north side, is 5° 27' N.

⁵ Probably Warri or some place in the vicinity.

valuable at the castle of S. Jorze da Mina, where the King's factor sells them to the negro merchants for gold. The inhabitants along this river are called Huela. Farther in the interior is another country called Subou¹, which is densely populated; here there is a fair amount of pepper of the kind we described almost at the end of the fifth paragraph of the seventh chapter. Beyond these dwell other negroes called Jos², who own a large country; they are a warlike people and cannibals. The principal trade of this country is in slaves and some ivory. All these regions are very hot, because they are near the Equator. The rivers are rife with fever and very unhealthy for white men, especially in the winter of this land, which begins in the month of May and lasts till the end of September, when there is much rain; it is especially heavy in August, which is the depth of winter [sic] throughout Ethiopia. During this season and in some other months of the year there are great storms of thunder and wind. The pilot who sees such a storm approaching his ship should furl sail, for, if he does not, the furious wind these thunderstorms bring with them will either send his ship to the bottom or break its mast and rigging and carry away the sails. He who would sail from Mina to the Rio dos Forcados should sail E by N; in this way he will make the Rio Feroso, which is ten leagues on this side of the Rio dos Forcados, and from there he must coast along the shore, for it is a very difficult country to distinguish. This is the direct route from Mina to this region [keeping] outside the bay, and it occupies 170 leagues of the route.

Item. Five leagues beyond Rio dos Forcados is another river called Rio dos Ramos³; the mouth of this river is as large as that

¹ I.e. the Sobo country. R. Burton describes it as comprising wide lands north and northeast of Warri: "the word applies to the greatest part of the country between Abo on the Niger, the Wari River and the southern branch of the Benin which bounds it on the north..." (*Fraser's Magazine*, 1863, p. 145).

² I.e. the Ejos or Ejomen, popularly called Joemen—"a large and influential tribe [inhabiting] the banks of the Escravos, Broder, Forcados, Ramos and Dodo Rivers extending to the Nun and Brass Rivers.... They are almost always at war with the Jakri men, because like these, they trade for oil to the Sobo country..." (R. Burton, *Fraser's Magazine*, 1863, pp. 145-6). T. J. Hutchinson (*Ten Years' Wanderings among the Ethiopians*, p. 61) calls them cannibals.

³ Cf. *Africa Pilot*, Part I, p. 383.

of Rio dos Forcados or larger, but it is shallow throughout, with less than two fathoms, the sea breaking frequently along the whole of this bay. Ships making for Rio dos Forcados have suffered wreck here, for they passed Rio dos Forcados without recognising it and entered Rio dos Ramos mistaking it for the other and were wrecked on the bar. The inhabitants of this country are called Jos and are cannibals, as we have said. There has been no trade here so far, nor do we know if there is any possibility of trade. All this country is densely populated and thickly wooded; the interior is intersected by other rivers and all the land of this river and of Rio dos Forcados is formed into islands, the inhabitants communicating by canoes made of a single trunk.

Item. Rio dos Ramos and Cabo Formoso¹ lie NNW and SSE and occupy twelve leagues of the route. All the country between the cape and the river is very low and sparsely populated. Cabo Formoso has a very low spit² which runs out to sea in a curving fashion a good five leagues. In the months of July and August the currents flow past here with such force³ that a ship coming here in these months should keep far out from land if it is making for Mina, for it will find it impossible to sail along the coast owing to the strength of the currents flowing SE. The two sure landmarks of this cape are firstly, that this part of the coast trends east and west for a good fifty leagues, and secondly, that its latitude is 5° 50' N⁴.

¹ "Cape Formoso is the name applied to the wooded tract on the eastern side of Nun River entrance forming the southern extension of the delta of the Niger, of which Palm Point is the extreme" (*Africa Pilot*, Part I, p. 403). Pacheco is considerably out in his reckoning of the distance between Ramos River and Cape Formoso: according to the *Pilot* figures it is at least 80 miles (i.e. 26 leagues approximately—Portuguese fashion).

² I.e. Nun bar—"one of the worst bars of the Niger delta, probably owing to its geographical position, the coast line here changing its direction sharply, rendering the bar fully exposed to the westward as well as to the southward. . . . The bar is composed of a semi-circular belt of sand connecting the western and eastern spits, which extend southward from the entrance points of the river" (*Africa Pilot*, Part I, p. 386).

³ Cf. *Africa Pilot*, Part I, pp. 34, 46.

⁴ Actually 4° 16' N.

Chapter ix

*Concerning the routes, landmarks and degrees
[of latitudes] beyond Cabo Feroso.*

Since we have undertaken the heavy task of describing the benefits conferred by past princes on the Kingdoms of Portugal by the discovery of Ethiopia, which was before totally unknown to us, we consider ourselves obliged to finish the work we have begun, in spite of railers, back-biters and slanderers who blame what is well done and are unable to do anything well themselves; but we will continue our work and leave them to be consumed in their envy.

Item. We have already stated that the coast for fifty leagues beyond Cabo Feroso trends east and west. He who arrives here going east will, at a distance of a league and a half from the shore, find only eight or ten fathoms and a mud bottom. Six or seven leagues beyond this cape is a river which has not a very large mouth, called Rio de Sam Bento¹. Beyond it is another river called Sant' Ilefonso²; five leagues [beyond³] is the Rio de Santa Barbara⁴, and six leagues beyond this is another river called Rio Pequeno⁵. These four rivers are rather small and we have not hitherto traded in them; we only know that their inhabitants are called Jos and are cannibals. This coast lies in the same parallel as Cabo Feroso, that is, east and west.

Item. Eight leagues beyond Rio Pequeno to the east is a very large river called Rio Real⁶, the mouth of which is five leagues across. This river in our time has two entrances. One of these is in the middle of its mouth between two sand-spits and follows a north-south direction; it is a gunshot in width and at its deepest has $3\frac{1}{2}$ fathoms at high tide. Sailing thence inland to a village on the SE shore you will find seven and eight fathoms.

Item. The other entrance [to this river⁷] lies beyond and

¹ Brass River (?).

² St Nicholas River (?).

³ Lacuna: only the word we have inserted, or its equivalent, seems to be missing, however.

⁴ Cf. *Africa Pilot*, Part 1, p. 408.

⁵ Sombreiro River (?).

⁶ I.e. the combined estuary of the New Calabar and Bonny Rivers.

⁷ Lacuna: it seems only to require the words we have inserted.

runs NW and SE; it is a good league wide and any ship can tack against the wind here and proceed in five or six fathoms to a bank of sand almost in the centre of the bay, where there are three fathoms; this is the shallowest place. To sail in from here you must make for a sand-spit on the right and within this spit you can anchor opposite the mouth of a creek in twelve fathoms at a quarter of a league from the shore. The latitude of this river is $5\frac{1}{2}$ north¹; the castle of S. Jorze da Mina and this river lie on the same parallel of latitude, that is, east and west.

Item. The people of this river are called Jos, being the same as those of whom we spoke above, and they are all cannibals. At the mouth of this river within the creek above mentioned is a very large village of some 2,000 inhabitants², where much salt is made. The bigger canoes here, made from a single trunk, are the largest in the Ethiopias of Guinea; some of them are large enough to hold eighty men, and they come from a hundred leagues or more up this river bringing yams in large quantities, which, in this district, are very good and nourishing; they also bring many slaves, cows, goats and sheep. Sheep they call "bozy." They sell all this [merchandise] to the natives of the village for salt, and our ships buy these things for copper bracelets, which are here greatly prized—more than those of brass; for eight or ten bracelets you can obtain one slave. The negroes of this country are all naked, wearing only copper necklaces an inch thick; they carry daggers like those of the white Moors of Berbery. They are warlike and are rarely at peace.

Item. Three leagues beyond Rio Real is a small river called Rio de S. Domingos³; and four leagues beyond this is another river, very small, called after Pero de Sintra⁴. Three leagues farther on are two very small rivers, but as there is no trade there I will not name them.

¹ Fouché Point, which bounds the estuary on the west, is $4^{\circ} 24' N$.

² Bonny (?).

³ Andoni River (?).

⁴ By its location it appears to be identifiable with the Opobo (or Imo) River, but it is by no means a small river, for its mouth is $1\frac{1}{2}$ miles wide. It is to be noticed that from this point onwards Pacheco's description of the coast becomes very much less detailed. For instance, in passing from this river to the Cameroons River he says nothing about the intervening 100 miles of coast line which includes such large rivers as the Calabar and Rio del Rey.

Chapter x

Concerning the Serra de Fernam do Poo.

Three things chiefly are to be regarded in the description of a land; first, the landmarks and shape of the coast, so that it may be recognised: and if it cannot be recognised by this first means, doubts may be removed by the second, namely, the trend of the coast one is in search of, whether north and south or east and west or NE and SW, for if the direction of the land then met with is the same as that sought for, then they will be one and the same. If this method of identification fails, then observe the degrees of latitude of the place encountered, whether they be north or south of the Equator, and if they tally, both those of the place you are in and of the place you are seeking, then the degrees being all one and the landmarks¹ being in agreement, you will know for certain where you are. Because this island with its mountain range is five leagues beyond the last of the four rivers of which we spoke and because it is of a different shape from anything in the whole of Guinea, we have placed a picture of it here. And from Cabo Feroso, as we have said in the first paragraph of the ninth chapter of this second book, the coast runs east and west. This mountain and island were discovered by Fernam do Poo, a knight of the household of King Afonso V, and received the name of its discoverer²; it is situated 4° north of the Equator. This mountain is very high and in clear weather it can be seen twenty-five and thirty leagues away³.

¹ Lacuna.

² João de Santarem and Pedro d'Escobar, knights of King Alfonso's household who went out in 1470, on Fernão Gomes's account, to explore the coast beyond Cape Palmas, discovered, so it is generally believed, the Islands of S. Thomé, Anno Bom and Principe: whether Ilha Formosa, discovered by Fernam do Po, whose name it afterwards received, was discovered then or, as some have supposed, in 1486 during João Alfonso d'Aveiro's expedition to the King of Benin, we possess no evidence to show. The fact that Pacheco calls him a "knight of the household of King Afonso V" suggests that the discovery was prior to the year of that king's death, namely 1481.

³ Santa Isabel peak (10,190' above sea level) "is visible from westward on a clear day, or after a tornado, at a distance of 100 miles, but generally the weather is so hazy that it is obscured beyond quite a short distance" (*Africa Pilot*, Part II, p. 65, 8th edition).

The island at the mouth of this bay¹ is densely populated and grows a lot of sugar-cane; the mainland is five leagues distant. A ship coming to this land for anchorage will be in 15 fathoms a half a league from the shore. Slaves may be bartered here for eight or ten copper bracelets apiece. In this country there are many large elephants, whose tusks (which we call ivory) we buy, a large tusk for a copper bracelet; in addition there is here a fair abundance of malagueta, of a good and fine quality. Ethiopia has many things which yield a good profit when brought to Portugal. The inhabitants of this land² are called "Caaboo³," and fifty leagues inland is a . . .⁴ language called "Bota."

Aqui mapa.

Item. All the sea-coast from this Serra de Fernam do Poo to Cabo de Lopo Gonçalves⁵, a distance of eighty leagues, is densely populated and thickly wooded. The sea is very deep, thirty and forty fathoms half a league from the shore, and contains many whales and other fish. This country is very near the Equator, which the ancients declared to be uninhabitable but experience has shown us that this is not so.

Item. Two leagues beyond this Serra de Fernam do Poo to the NE is the Rio dos Camarões⁶, where there is good fishing, but we have not yet had any trade with the natives of this locality. Great tornadoes accompanied by very violent winds are experienced on this coast, and as a safeguard you should furl sail while they last⁷.

Item. Twenty leagues S by E from the mouth of the Rio dos Camarões is the Serra Guerreira⁸, which extends for rather more than a league in length, half a league from the coast. All this country is well-wooded and its latitude is $3\frac{1}{2}^{\circ}$ N of the Equator.

¹ I.e. Bight of Biafra.

² I.e. the mainland.

³ These people and their neighbours, the Bota, are probably members of the Bantu race inhabiting the Cameroons country along with the so-called pygmies.

⁴ Text corrupt. The original may have contained something as follows: "...another people, called in their language 'Bota.'"

⁵ I.e. Cape Lopez, the southern limit of the Bight of Biafra.

⁶ I.e. Cameroons River.

⁷ Cf. *Africa Pilot*, Part I, p. 36.

⁸ The Mount Elephant range (?). It is located approximately 3° N. and 60 miles S. by E. of Cameroons River, but is about 8 miles inland and some 17 miles long.

Item. Twenty-five leagues beyond the Serra Guerreira to the SE is another range, much smaller, and low, called Serra Bota¹, but, although its population is fairly dense, we have not as yet heard of any trade there.

Item. Beyond Serra Bota is a small bay surrounded by woods and at its mouth there is a small low-lying island called Corisco². The distance between the Serra and this bay is twenty leagues, the route lying N by E and S by W. The island is almost joined to the mainland.

Item. Seventeen leagues beyond the island of Corisco is a fairly large river having nine fathoms of water at its mouth and in its channel. It is called Rio do Guabam³. This river runs far inland and brings down a great quantity of fresh water and its territory is densely populated, but we have no knowledge of any trade with the negroes of this or in the preceding countries. This river and the island of Corisco lie N by E and S by W.

Chapter xi

The routes and landmarks from Rio do Guabam to Cabo de Caterina, which is also called Cabo Primeiro.

Experience has disabused us of the errors and fictions which some of the ancient cosmographers were guilty of in their description of land and sea; for they declared that all the equatorial country was uninhabitable on account of the heat of the sun. We have proved this to be false, for beyond the Rio do Guabam, of which we spoke in the preceding paragraph, is a low promontory which we call Cabo de Lopo Gonçalves⁴ after

¹ The Seven Hills (?). Actually these hills rise to a greater elevation than Mount Elephant, 2800 ft. as against 1700 ft.; the fact that they are situated 15 miles inland, however, may help to account for Pacheco's statement about their being much smaller and lower than Serra Guerreira.

² Cf. *Africa Pilot*, Part II, p. 119. The name "corisco" (meaning "lightning") was doubtless conferred upon the bay on account of the frequency of thunderstorms in this locality.

³ I.e. Gabon River, which is more of an estuary than a river.

⁴ Cape Lopez is actually the northern extremity of Lopez (or Mandji) Island, formed by two of the mouths of the Ogowé River.

the name of the captain who discovered it; this cape and the Rio do Guabam lie SW and S and NE by N and occupy twenty-seven leagues of the route. This Cabo de Lopo Gonçalves is exactly on the Equator¹ and it is densely populated by negroes, as densely as in any part of the world. During many years of navigation and exploration of this part of the Ethiopias of Guinea we have in many places taken the degrees of latitude, and we have found that the Equator passes exactly over this promontory and that the days and nights here are equal or with so little difference between them as to be scarcely noticeable. Many of the ancients said that two lands lying east and west of one another would both have the same degrees of the sun and would be in all things alike; as to their equal share of sun this is true, but such is the variety employed by the majesty of great Nature in her creative work that we find from experience that the inhabitants of this promontory of Lopo Gonçalves and of the rest of Guinea are very black, whereas the inhabitants of the same latitudes beyond the Ocean to the west are brown, almost white. These are the inhabitants of Brazil, of whom we spoke in the second chapter of our first book. If any should aver that they are white because of the many forests which protect them from the sun, I would answer that there are as many and as dense forests in this eastern side of the Guinea² Ocean; and if they should say that the inhabitants of Guinea are black because they are naked and the inhabitants of Brazil white because they wear clothes, I answer that Nature has given them an equal privilege in this, for they are all naked as when they were born; so that we may say that the sun affects them equally. And now it only remains to know if they are both descended from Adam.

Item. Sixty leagues out to sea WNW from Cabo de Lopo Gonçalves is the island of Sam Thomé³, which was discovered

¹ 0° 40' S. in reality.

² I.e. Southern Atlantic.

³ The island of S. Thomé lies between the parallels of 0° 24' N. and 0° 01' S. and between the meridians of 6° 28' E. and 6° 46' E.: it is 128 miles westnorthwest of Cape Lopez, the nearest point on the African mainland. Although the island is well cultivated to-day, dense forests still clothe the mountain ranges which radiate from the centre of the island. The luxuriance of the vegetation is largely the resultant of heavy rainfall, continuously high temperatures and rich volcanic soils.

at the bidding of the most serene King John II of Portugal, who ordered it to be peopled. This island is some fifteen leagues long and eight leagues wide, and is situated 1° N of the Equator. On the north it has a large bay in which ships of any size can anchor. This island has the most beautiful tall dense forests in the whole of the Ethiopias of Guinea, and many good springs and streams of water. This island also has by far the best sugar-canes grown anywhere and many very good orange, lemon and citron trees, in addition to other trees which flourish here. Here, too, there are many large man-eating crocodiles, both in the streams and in the sea; there are also vipers, with black backs and white bellies, of the thickness of a man's leg and long in proportion, and these are exceedingly poisonous¹. I think that if you wished to plant mulberry trees here and grow silkworms they would do exceptionally well.

Item. To the NNE of the island of Sam Thomé is another smaller island called Sant' Antonio or Principe², twenty-five leagues distant by sea. It lies 3° N of the Equator. This island also was discovered and peopled by King John II; it is very like the island of Sam Thomé in character, except that it has not its serpents.

Item. Twenty-three leagues beyond Cabo de Lopo Gonçalvez is a small river called Rio das Barreiras³ which lies NW by N and SE by S with respect to the said Cape and $1^{\circ} 12'$ south of the Equator. We do not know if any profit is to be made here, as the river is very small and shallow and no ships enter its mouth. The negroes of this land are all heathens and idolaters and not given to commerce; they live on meat, millet and sugar-canes.

Item. Twenty leagues beyond the Rio das Barreiras one finds a small low-lying promontory called Cabo de Caterina⁴; this

¹ The Gaboon viper. "Of all serpents, this representative of Africa's excessively stout vipers is the most sinister" (R. L. Ditmars, *The Snakes of the World*, Plate 47). Its normal length is about 6 or 7 ft. and its under-markings are light compared with those on its back (*vide* F. Angel, *Les Serpents de l'Afrique Occidentale Française*, pp. 203-4).

² Now called by the latter name, the former being reserved for one of the most important bays in the island. It lies between $1^{\circ} 42'$ N. and $1^{\circ} 32'$ N.

³ One of the numerous distributaries of the Ogowé River (?).

⁴ I.e. Cape St Catherine, discovered in 1470/1.

name was given it by Ruy de Siqueyra, a knight of the household of King Afonso V, who discovered it on St Catherine's day, which is the 25th day of November. This cape and the Rio das Barreiras lie NW by N and SE by S and the land here is low and well-wooded. Beyond this cape the coast, which takes an almost eastsoutheast turn, forms a bay which extends for five leagues. This promontory is $4^{\circ} 30'$ south of the Equator¹. Thus far extended the discoveries of the excellent prince, King Afonso V, and here our second book ends, and the third book begins, concerning the most serene prince, King John II of Portugal, his son.

¹ Actually only $1^{\circ} 53'$ S. Pacheco obviously did not bother to check his linear reckonings against his astronomical, otherwise he would never have allowed his reading of $4^{\circ} 30'$ S. to stand, for this means that Cape St Catherine and Rio das Barreiras are some $3^{\circ} 18'$ apart (i.e. 60 leagues on his calculation), whereas he says that they are only 20 leagues apart.

THIRD BOOK

THE BEGINNING of the THIRD BOOK of the *Esmeraldo De Situ Orbis*, concerning the discoveries of the most serene Prince, King John II of Portugal. Here follows, firstly, the Prologue.

WRITERS who allow things worthy of remembrance to fall into oblivion deserve great blame; it is right therefore that we should record the high deserts of that prince whose glory deserves to be eternal. For among men born of women singularly endowed with divine virtue there arose no man so excellent in his time as the late most serene prince, King John II of Portugal; and since the end of blessedness consists in virtues, his noble virtues of which he had his full share secured a glorious immortality for his excellent fame. Since our second book concerning King Afonso V is ended, we must now in this Prologue begin our third book, telling of the discoveries of the most serene King John. It is a heavy task, owing to the greatness of the prince whose deeds we hope to relate; his famous achievements, known and spread throughout the globe, should be related by those ancient fathers of eloquence and learning whose disciples all of us have been. But since I have been emboldened to undertake the task, I should not be censured by the learned, much less by mischievous back-biters and grumblers who in their malice habitually write books against books slandering and criticising things well done such as they could never have done themselves. But what can I say of this prince except that he was a Catholic after the divine pattern? He excelled in love both towards men of the highest and lowest estate, and his heart was continually with God and in him was fulfilled the saying of the most wise King Solomon that "The fear of the Lord is the beginning of wisdom¹." In understanding and singular talent he excelled all the men of our time. He was the soul and essence of truth, so

¹ Proverbs ix, 10.

that we believed in his word as in the Gospel. The beauty of his soul corresponded to the beauty of his bodily appearance; his knowledge and counsel seemed to be divine, so that he accomplished great deeds. He knew also how to be liberal with discretion, guarding himself from the vices of avarice and prodigality. In all that he did he was great, and the strength of his heart is worthy of great praise, based as it was on an honest peace of mind of great power; he was esteemed by all the princes of Christendom as excelling in all his deeds, and equally by the Moors. When only sixteen he was knighted at the capture of Arzila, which the King, his father, took by force of arms from the Moors, but all the praise that can be ascribed to him must needs fall short of his great excellence. He ever maintained justice in his republic, over which he ruled as a loving shepherd, and his yoke was light¹. His device was a pelican (which we have drawn here) plucking its breast to give its blood to its young. His motto was "Polla ley e Polla grey²"; and he was consistent in all things. But I will say no more that I may not be blamed for prolixity, although prolixity when well employed is no bad thing.

"Polla ley e Polla grey."

Chapter i

Concerning the discoveries of the most serene Prince, King John II of Portugal.

Ancient writers greatly praised the navigation which Menelaus is said to have made from Calez to the Arabian Gulf and which Eudoxus also made from the same place to Calez and which Hanno of Carthage made from Spain to the Arabian Gulf, all three making the same voyage. Moreover, Pliny says, in the 69th chapter³ of the second book of his *Natural History*, in which

¹ Cf. St Matthew xi. 30.

² I.e. "For the law and for the people."

³ Actually the 67th chapter. The passage, the sense of which Pacheco distorts, runs as follows: "We learn from Cornelius Nepos, that one Eudoxus, a contemporary of his, when he was flying from King Lathyrus, set out from the Arabian Gulf, and was carried as far as Gades. And long before him, Caelius Antipater informs us that he had seen a person who had sailed from Spain to Ethiopia for the purposes of trade" (Bostock and Riley's translation).

he quotes Celijs Antipater and also Cornelius Nepos, that these men saw persons sail, for trading purposes, from Spain to Ethiopia or Guinea, which they considered a most notable achievement. But I say that, for all their knowledge of those parts, the best part of all these regions and provinces remained for us as virgin soil; for we have found out and know in great detail all the country of the Ethiopias of Guinea and India. In particular we have sailed along the coast and have many years' experience of the way of life of the negroes of this region and of their trade and idolatries. In this we, the Portuguese, have excelled the ancients and moderns in such wise that we may justly say that, compared with us, they knew nothing. This was due to the great intelligence of our princes mentioned in this book and the courage of their hearts, so that they spent their treasure in the discovery of these lands only to win immortal fame; with very happy results, for those who previously were ignorant of the faith of Our Lord Jesus Christ and were lost, body and soul, now through communication with us have knowledge of it and are on the way to salvation, for many of the Ethiopians who have been brought to Portugal have become Christians and have received the water of holy baptism, so that they ought certainly to be saved. The worst drawback from the point of view of the composition of this work of ours is that it so happens that in the part discovered by the most serene King John the country from Cabo de Caterina is mostly deserted or if inhabited has little or no trade; had it been rich in trade as the preceding region I should have had much greater pleasure in describing the advantages to be derived from it.

Item. Beyond Cabo de Caterina, which we mentioned in the last paragraph of the second book, are some fairly high red cliffs above the coast which extend for about a league along the shore¹; Cabo de Caterina lies with respect to these NW by W and SE by E and the intervening distance is twenty leagues. The latitude of these cliffs is 5° south. The country is densely wooded and thickly populated, and here there are many elephants and many other animals of various kinds.

¹ The neighbourhood of Panga Point(?) (*vide Africa Pilot*, Part II, p. 159).

Item. Twelve leagues beyond these red cliffs are two thickets above the coast, with exceptionally tall trees. The littoral is all beach and the coast rugged, the hinterland being neither very high nor very low, but of average elevation. The red cliffs and these thickets lie NNW and SSE and occupy twelve leagues, as I have said.

Item. Twenty-five leagues to the SSW of these thickets is a large river which we call Rio do Padram¹ and which was discovered at the bidding of the most serene King John II by Dieguo Caão, a knight of his household, in the year of Our Lord 1484. The latitude of this river is 7° south²; in winter, which lasts here from April till the end of September, it brings down so great a volume of fresh water that it is felt thirty leagues out at sea³. When it was discovered they set up beyond its mouth

¹ I.e. Congo River. Diogo Cão, who discovered this river on his first African voyage in 1483, and not 1484 (*vide* W. Ravenstein, "The Voyages of D. Cão and Bartholomeu Dias," *Royal Geographical Journal*, 1900, pp. 627 *et seq.*), was the first to carry "padrões" (or stone pillars) on a Portuguese exploring voyage. Up to his time the Portuguese had been content to erect perishable wooden crosses, or to carve inscriptions into trees to mark the progress of their discoveries. King John conceived the idea of using stone pillars, surmounted by a cross and bearing, in addition to the royal arms, an inscription recording in Portuguese and sometimes in Latin, the date, the name of the king by whose order the voyage was made and the name of the commander. The four "padrões" set up by Cão on his two voyages have been discovered *in situ* and the inscriptions upon two of them—one for each voyage—are still legible and have been deciphered. The Congo "padrão" was broken into fragments, wantonly so it would seem, by the Dutch when they occupied the Congo in 1642. Although two large fragments of it have been rescued, it has not been possible to reconstruct the inscription. However it is probable that, in its main elements, it followed the plan of the second "padrão" erected on Cão's first voyage, namely at Cape St Mary. On this pillar, which stands about 7 ft. high, the inscription, written *in Portuguese only*, runs as follows: "In the year 6681 of the world, and in that of 1482 since the birth of Our Lord Jesus Christ, the most serene, most excellent and potent prince, King John II of Portugal did order this land to be discovered and these 'padrões' to be set up by D^o Cão, an esquire of his household."

² Actually 6° S.

³ The coolest months in the lower Congo are from June to the beginning of October, when very little rain falls. During the first ten days of October the weather changes, becoming showery with intervals of dryness. By the end of the month the hot, or rainy, season is fully established and it lasts, with the exception of an interlude in January and February—the "little dry season"—right on until the end of April. The correlation between the seasons and the volume of the Congo is hardly as simple as Pacheco seems to think. The Congo itself, and its left bank affluents, more especially the Kasai, have two periods of high level and two periods of low level each year. The river is

British Museum, Egerton MS. 2803

to the SE a tall stone pillar with a threefold inscription, in Latin, Portuguese and Arabic, and it was accordingly called Rio do Padram. Its channel has a depth of eight to ten fathoms. This is the kingdom of Conguo, of which we will speak in the following chapter. The inscription speaks of the King by whose command the discovery was made and the date.

Chapter ii

Concerning the Kingdom of Conguo and the country of the Anzicos, where they eat men.

Above this Rio do Padram concerning which we have spoken in the above paragraph of the third book is the Kingdom of Conguo. The natives call this river "Emzaze¹." It rises in the interior in some mountains fifty leagues distant from the coast²; its size is increased by numerous tributary rivers and the negroes of this country use many large canoes. There is much fishing there, but the region is very liable to fever. The native word for lord is "many," thus "maniconguo" means the "Lord of Conguo."

low in March and July, high in May and December. "This double maximum and double minimum are due, not so much to the alternate flooding of the tributaries lying, respectively, northward and southward of the Equator, as was formerly believed, as to the double rainy season in the region southward of the Equator. The northern affluents contribute to the result, but the southern appear to control the level of the river" (*Africa Pilot*, Part II, p. 181). During these rainy seasons, the current is very rapid, probably about 4 knots, and so great is its volume that "the surface water is still quite fresh at a distance of 9 miles seaward of the mouth of the Congo, and it is only partially mixed with that of the sea at a distance of 40 miles from the coast: whilst discoloration caused by the fresh water, and also a perceptible current has been reported 300 miles offshore" (*ibid.* pp. 179, 180). Diogo Cão, according to a statement on Soligo's chart of this region, found fresh water 5 leagues out to sea.

¹ This is a corruption of the native word "Nzadi" signifying "great river," but at the present time applied specifically to the Congo. It was from this word probably, that the common Portuguese appellation for the Congo—"zaire"—was coined.

² Seeing that Pacheco has just told us that the current of the Congo is felt 30 leagues out to sea, it is surprising that he should be content to give it so small a length—less than that of the Tagus!

As soon as the most serene King John discovered this country he sought to convert Maniconguo and his people to Christianity¹. For this purpose he sent out monks and priests to teach them the articles of our faith. They took with them rich church ornaments, organs and other necessary things; when Maniconguo and the nobles and people saw the Mass and other divine services they were very pleased and he and the nobles were at once baptised and became Christians, but he would not allow the rest to be baptised, saying that so good and holy a thing should not be bestowed on men of low degree. However they did not give up their many wives, for they had always had them and it was impossible to change [the practice]. Furthermore, owing to our infrequent communication with these people, they are rapidly losing their Christianity.

Item. In this land of Maniconguo there is no gold, nor do they know what gold is; but there is much fine copper and many elephants, which they call "zaão"; we barter the copper and ivory for linen, which the natives call "molele." In this Kingdom of Conguo they make cloths of palm-leaf as soft as velvet, some of them embroidered with velvet satin, as beautiful as any made in Italy; this is the only country in the whole of Guinea where they know how to make these cloths. A few slaves are obtained in this country but we know of no other commerce.

Item. Beyond the Conguo country to the NE there is another country called Anzica, its lord in our day being called Emcuquan-zico. The inhabitants, like those of Conguo, are black and are branded on the forehead or temples with a circle in the shape of a snail. They are usually at war with Maniconguo, and any who die in battle, either on their own side or on that of the enemy, they straightway eat, and they also eat anyone who appears to be sick unto death. This land is situated very far

¹ Barros tells us that Cão, on his second voyage, brought back the sons of some of Manicongo's courtiers to be instructed in the Christian faith and that Manicongo himself asked for priests to instruct the people (*op. cit.* Decade 1, book III, chap. 3). Ruy de Pina, who gives us the best account of the spread of Christianity in the Congo, adds that Manicongo also desired to have masons and carpenters to erect churches and houses, so that he might be able to model his kingdom as far as possible on the Portuguese pattern (*Cronica de D. João II*, chaps. 58-63).

from the coast in the interior, and we do not know of any profit to be had there.

Item. Some thirty-five leagues beyond Rio do Padram, of which we have spoken above, is the small river called Rio do Mondeguo¹; here the coast forms a bay of a little more than a league and at its mouth there are two small islands, low and level and sparsely wooded, called Ilhas das Cabras². They are very near the mainland and the negroes who inhabit them belong to the lordship of Maniconguo, the Conguo country extending even beyond them. The negroes of these islands pick up small shells (of the size of pine-nuts in their shell) which they call "zinbos." These are used as money in the country of Maniconguo; fifty of them will buy a hen, and three hundred a goat and so forth; and when Maniconguo wishes to confer a favour on one of his nobles or reward a service done to him, he orders him to be given a certain number of these "zinbos," just as our princes bestow money of these realms on those who deserve it, and often on those who do not. In the country of Beny, concerning which I wrote in the fourth paragraph of the seventh chapter of the second book, they use as money shells which they call "iguou," a little larger than these "zimpos" of Maniconguo; they use them to buy everything and he who has most of them is the richest. The country from Rio do Padram to Rio do Mondeguo and the Ilhas das Cabras along the coast is flat and well wooded; it lies north and south and occupies thirty-five leagues of the route, as I have said above. The Ilhas das Cabras are situated 9° south of the Equator and by this they can be recognised. Off these islands at thirty fathoms there is extremely abundant fishing.

Item. Twenty leagues beyond the Ilha[s] das Cabras is the point called Ponta das Camboas³, so-called because when Dieguo Caão, a knight of the household of the late King John, discovered this land, he found some fish-garths here in which negroes were

¹ Bengo River (*vide* Ravenstein, *op. cit.* p. 652).

² Loando Island and Loando Reef. Cf. *Africa Pilot*, Part II, p. 202.

³ Cape São Braz (10° S.) according to Ravenstein (*op. cit.* p. 652), but the *Pilot* speaks of no off-shore dangers. Cape Ledo (9° 45' S.) seems to be a more likely identification (*vide Africa Pilot*, Part II, p. 207). "Camboas" signifies fish-garth, dam or weir.

fishing and so he gave it this name. This point is full of hidden rocks. Beyond, there is a very small river like a creek; it has no trade and need not be described. This point lies NNW and SSE in respect of the Ilha[s] das Cabras and is twenty leagues along the route; its latitude is $10\frac{1}{2}^{\circ}$ south.

Item. Ponta das Camboas and Ponta de Sam Lourenço¹ lie north and south and occupy twenty leagues of the route; all this country is very flat and less wooded than the preceding.

Chapter iii

Concerning the routes, distances and degrees beyond Ponta de Sam Lourenço.

The discovery of these Ethiopias cost Prince Henry the death of many men and much expense, for he was the first discoverer of the great things we have found worthy to record. For this reason, we will continue to describe the whole of the country with its harbours, bays, routes and degrees of latitude, so as to observe a proper order and to make known the coast and sea-board for the benefit of those who come after us, in case they need it.

Item. Beyond Ponta de Sam Lourenço, of which we wrote in the last paragraph of the second chapter of Book III, there begins a bay²... of Santa Maria: beyond, the coast runs straight and at eighteen leagues, reckoning from Ponta de Sam Lourenço, it forms a promontory called Ponta Preta³; it was given this name because they use a black "manilha"⁴ there. Ponta de Sam Lourenço and Ponta Preta lie N and S and occupy eighteen leagues of the route. The country is not as well-wooded as the preceding region. Ponta Preta is situated $13^{\circ} 40'$ south of the Equator.

¹ Morro Point (?). Cf. *Africa Pilot*, Part II, p. 208.

² Lacuna. The sense is supplied by the insertion of some such words as "which has the name." The bay in question is Benguela Bay.

³ I.e. Cape St Mary, $13^{\circ} 26'$ S.

⁴ Ravenstein gives the following explanation of the name: "it was called Ponta Preta...because of a black trumpe—manilha negra—which was played here in a game of 'manille'" (*op. cit.* p. 631).

Item. Ponta Preta and Monte Negro lie N and S and occupy 25 leagues of the route. This mountain, which is not very lofty, rises above the sea. It was named Monte Negro because it is covered by a low, even thicket which makes a darker showing than the sand surrounding it. This part of the coast is practically desert and has a very sparse population. The latitude of Monte Negro is $15^{\circ} 20'$ south.

Item. Eight leagues beyond Monte Negro is a large bay which runs inland a league and a half. It is called Angra das Aldeas¹, because, when Dieguo Caão discovered this coast at the bidding of the late King John, he found two large villages inside this bay. The negroes of this land are poor and live entirely on fish, which is plentiful in this neighbourhood; they are idolaters. There is no profit to be made here. From Monte Negro thither the coast runs NE and SW and occupies eight leagues; and all this country along the sea is low.

Item. Beyond Angra das Aldeas is a bay some two leagues wide at the mouth, called Mangua das Areas²; it runs five or six leagues inland and both inside and at its mouth has a depth of twelve and fifteen fathoms. The country is a treeless desert containing nothing but sand. There is much fishing inside the bay and at certain times of the year negroes from the interior come to fish here; these make huts of whalebones covered with seaweed and sprinkled with sand and lead a miserable existence. This Mangua das Areas and the Angra das Aldeas lie NE and SW and occupy fifteen leagues of the route. The latitude of Mangua das Areas is $16\frac{1}{2}^{\circ}$ south.

Item. Six leagues beyond the Mangua das Areas the land forms a low point covered with sand, called Ponta das Pedras³, so called because in front of this point and beyond it are many large rocks. The coast to this point runs NE by E and SW by W and occupies six leagues of the route. The land is very low and difficult to distinguish, but it can be recognised by the fact that it is $16^{\circ} 40'$ S of the Equator: this is its best landmark.

¹ The vicinity of Albino Point, $15^{\circ} 55'$ S. (*vide Africa Pilot*, Part II, p. 227).

² I.e. Tiger Peninsula, $16^{\circ} 30'$ S. (*vide Africa Pilot*, Part II, p. 228).

³ I.e. Monte Vermelho, near the southern extremity of Great Fish Bay, $16^{\circ} 50'$ S.

Item. Ponta das Pedras and Cabo Negro¹ lie N and S and occupy twelve leagues of the route. This cape is very low, and the surrounding country is all sand except at the point of this cape where there is a black patch, hence the name of the cape; it only appears as a cape when one is a league away at sea, for at three and four leagues the coast appears to be straight. This country is difficult to navigate; its winter lasts from the month of April till the end of September. Ships bound for India always keep 250 and more leagues out to sea in order to avoid this part of the coast.

Chapter iv

of the third book of the Esmeraldo De Situ Orbis.

There were many opinions in times past among the learned in Portugal as to the discovery of the Ethiopias of Guinea and of India. Some said that it was better not to trouble about discovering the sea-coast but to cross the Ocean until you reached some country in or adjoining India, and this would make the voyage shorter; others held that it would be better to discover the coast gradually and learn the routes and landmarks and the peoples of each region, so as to have certain knowledge of the country they were seeking, for in no other way would it be possible to know the land. It seems to me that the second opinion, which was followed, was the better, and so the discovery proceeded along the coast. We must thus continue our description of the coast from Cabo Negro in the same manner as we have written above about the said land.

Item. Seventeen leagues beyond Cabo Negro are some sand-hills along the sea, six or seven in all, rather higher than the surrounding country. The whole of this coast is desert and uninhabited, and from Cabo Negro to these sand-hills it runs N and S and occupies seventeen leagues of the route. The latitude of these hills is 19° south.

Item. The coast from the sand-hills to Angra de Ruy Pires²

¹ Cape Frio (?) (*vide Africa Pilot*, Part II, p. 231).

² Ravenstein locates it off Uniab River, 19° 50' S. (*op. cit.* p. 653). Exact identification is impossible from the *Africa Pilot*. Ruy Pirez was presumably one of Diogo Cão's men but nothing is known of him.

runs midway between N and S and N by W and S by E and occupies twenty leagues of the route. All this country is very low, sandy and deserted. In this bay six or seven small vessels can anchor in eight fathoms a gunshot from land on a clean bottom; the latitude of the bay is 20° south.

Item. Twenty-five leagues beyond Angra de Ruy Pires is another small bay called Angra de Santo Amaro¹; it is very small, and all this country is deserted and covered with sand. Angra de Ruy Pires and Angra de Santo Amaro lie NNW and SSE and occupy the said twenty-five leagues of the route, and this Angra de Santo Amaro is situated $21\frac{1}{2}^{\circ}$ south of the Equator.

Item. Angra de Santo Amaro and Areaces lie N and S and occupy twelve leagues of the route; the coast is deserted, being nothing but sand, hence the name "os Areaces²." They are $22^{\circ} 20'$ south of the Equator. Ten leagues beyond the Areaces is a point called the Cabo do Padram³, which has a stone pillar with an inscription in three languages, in Latin, Arabic and Portuguese⁴, all three in the same tenor, giving the date, after the creation of the world and in the year of Our Lord Jesus Christ, when King John II of Portugal ordered the discovery of this coast by Dieguo Cão, knight of his household and captain of his ships. This cape and the Areaces lie N and S and occupy ten leagues of the route as stated; its latitude is $22^{\circ} 45'$ south. This country is low and difficult to recognise, its best landmarks being the elevation of the Antarctic Pole and its degrees from the Equator.

¹ Ambrose Bay (?) (*vide Africa Pilot*, Part II, pp. 232-3).

² I.e. sandy places—a description that is applicable to practically any part of this stretch of coast.

³ I.e. Cape Cross, $21^{\circ} 50'$ S. This cape, according to the legend on H. Martellus Germanus's map of c. 1489, coincides approximately with Cão's "farthest south," for he only "proceeded onwards as far as the Serra Parda. . . and here he died."

⁴ This "padrão" remained *in situ* until 1893, when it was carried off to Kiel by the captain of the German ship *Falke*. It bore only *two* inscriptions, in Gothic letters, one in Portuguese and the other in Latin, together with the arms of John II (adopted in 1485). The Portuguese inscription says: "In the year bjMbclxxxb (6685) of the creation of the world, and of Christ lllclxxxb (1485) the excellent, illustrious King D. João II of Portugal did direct this land to be discovered, and this padrão to be set up by D^o Cão, an esquire of his household." The dates in the Latin inscription are in *Arabic* characters, which may perhaps account for Pacheco's mistake.

Item. Cabo do Padram and Praya das Pedras¹ lie N and S and occupy twelve leagues of the route. This beach is five or six leagues long and most of it is covered with rocks; at the end of it is a very small bay² which lies precisely under the tropic of Capricorn and so its latitude is $23^{\circ} 33'$ south. All this coast is a sandy desert but there is very abundant fishing here. From this point navigation becomes difficult: in the months of June, July and August, however, north and northwesterly winds blow in this neighbourhood and are favourable for the voyage to the Cabo de Boa Esperança.

Chapter v

Concerning the country beyond the tropic of Capricorn.

Great has been the glory acquired by the virtuous Prince Henry who initiated this navigation and discovery, and by King Afonso V and King John II, his son, and especially by our Lord the most serene prince, King Manuel, in discovering this unknown country of the Ethiopias of Guinea, which all the ancients maintained could never be reached by navigation. To that magnanimous man, our Emperor Manuel, has fallen the most glorious part, for he discovered nearly the whole of Ethiopia under Egypt and the most distant kingdoms of India, in which regions at his bidding great conquests and singular victories have been achieved, as we shall relate in the fourth book; but we must first finish this third book and follow our plan of describing the coast in due order.

Item. The coast between Praya das Pedras and Angra da Comceipçam³ lies midway between north and south and N by W and S by E and occupies 25 leagues of the route. All this coast half a league from shore is foul with great reefs of rock; the

¹ I.e. Rock Bay, $22^{\circ} 18'$ S.

² The mouth of the Swakop River, $22^{\circ} 40'$ S. (?) (*vide Africa Pilot*, Part II, p. 235).

³ Conception Bay, 24° S., or Spencer Bay, $25^{\circ} 35'$ S. Ravenstein (*op. cit.*) identifies it with Walvis Bay, but this is only $22^{\circ} 53'$ S.

hinterland is low and covered with sand and difficult to find. The latitude of the bay is $25^{\circ} 30'$ south.

Item. Fifteen leagues beyond the Angra da Comceipçam is another small bay called Angra da Balea¹; they lie midway between N and S and N by W and S by E. The bottom along all this coast is clean; in thirty fathoms one will be a league from shore, and here there is good fishing. The latitude of this bay is $26\frac{1}{2}^{\circ}$ south².

Item. Angra da Balea and Terra das Baixas³ lie N by W and S by E and occupy twenty leagues of the route. This locality has some coastal shallows of rock which run out into the sea for not more than a quarter of a league and in length extend for about a league; this Terra das Baixas is $27^{\circ} 30'$ south of the Equator. Ten leagues beyond the said Terra das Baixas is a small bay with an islet at its mouth⁴, and behind the coast the land becomes more elevated, and assumes the appearance of a mountain range; and from Terra das Baixas to this range the coast runs midway between north and south and N by E and S by W and occupies the aforesaid ten leagues of the route.

Item. Fifteen leagues beyond this range is the beautiful Angra das Voltas⁵, with a wide inlet to the NW. This coast runs N and S; but he who leaves this mountain, bound south, must keep close to land and if it be night should steer south by west. This Angra das Voltas runs inland a good league and a half, and a hundred ships can anchor here in ten to twelve fathoms, safe in all weathers. The bay is a league or more across and contains some rocky islets, and there is good fishing here; it was discovered by Bertholameu Diaz at the bidding of the late King John and is located $29^{\circ} 20'$ south of the Equator. The country is bare and unwooded.

¹ Luderitz Bay, $26^{\circ} 35'$ S. (?).

² Cf. p. 24, where the latitude is given as 21° S.

³ The coast in the neighbourhood of Prince of Wales Island, $27^{\circ} 10'$ S. (*vide Africa Pilot*, Part II, p. 256).

⁴ Baker Bay, $27^{\circ} 40'$ S. It is entered between Black Sophie rock and Sinclair Island—a small guano island. The hinterland is dotted with hills of volcanic formation and presents quite a mountainous appearance (*vide Africa Pilot*, Part II, p. 257). Ravenstein believes that it is to be identified with Spencer Bay, but this is only $25^{\circ} 43'$ S.

⁵ Peacock Roadstead to the south of Cape Voltas ($28^{\circ} 42'$ S.) (?). Ravenstein (*op. cit.*) favours Luderitz Bay.

Item. Twenty leagues beyond Angra das Voltas is the Serra da Pena¹; this range is fairly high, treeless and covered with rocks. All this country along the coast is deserted. He who makes for these mountains from Angra das Voltas should stand four leagues out to sea; by steering SSE he will make the said Serra da Pena and be 20 leagues farther on the route, as already stated. This Serra is 30° 20' south of the Equator. Just beyond this Serra the coast forms a bay with an islet, and farther beyond still there is a lofty tableland² near the coast: the extremity of this tableland and the said Serra lie NW and SE and occupy ten leagues of the route.

Chapter vi

Concerning Serra da Pena and its tableland, and of the routes and landmarks of the country as far as Cabo de Boa Esperança.

Great favour have we received from the Lord from whom all blessings proceed, for He has given us time and ability to finish the work we have begun, but it is with no small effort that we have written here of the toilsome way, more difficult of discovery than might appear. Our princes who undertook this [enterprise] did not spend their lives and treasures in vain, since they attained the desired end. In order that the navigation of this Ethiopia and its coast may be known in detail for all time, we must continue our plan and fulfil our promise.

Item. Twenty-five leagues farther on there is a peak³ which lies NNW-SSE with the tableland of the Serra: it is fairly high and rocky. This part of the coast during its winter, which begins

¹ The hills rising behind Hondeklip Bay, 30° 20' S. (*vide Africa Pilot*, Part II, p. 268).

² There is no lofty tableland near the coast, but 40 miles southeast of Hondeklip Bay there is a plateau about 14 miles inland rising to nearly 2000 ft. There is also a very high range of mountains at a considerable distance inland of this plateau—the Lange Berg. *Vide Africa Pilot*, Part II, p. 269.

³ I.e. Kapiteins Kloof, 3410 ft.—“a very conspicuous summit in the Piket-berg range of mountains.” *Africa Pilot*, Part II, p. 273.

in April and lasts till the end of September, is stormy and cold. The principal landmark of this locality is the latitude; the peak is $32\frac{1}{2}^{\circ}$ south of the Equator.

Item. Twelve leagues beyond this peak is a bay called Angra de Santa Elena¹: it is fairly large and dangerous because of its many reefs of rock; the peak and this bay lie N and S and occupy 12 leagues of the route, as we have stated. The whole of this coast is foul with rocks. On the south the bay runs into a point², where there are shallows and here one must be very careful; its latitude is $32^{\circ} 30'$ south of the Equator³.

Item. He who sails beyond Angra de Santa Elena should stand three leagues out to sea because of the presence of some reefs of rock here; all this coast has a sandy beach. Twelve leagues beyond Angra de Santa Elena is a point called Ponta da Praya⁴; this point and the aforesaid bay lie NW and SE; the latitude of the point is $34^{\circ} 10'$ south of the Equator.

Eight leagues beyond Ponta da Praya is a beautiful promontory which we call Cabo de Boa Esperança⁵; it lies NNW and SSE with the Ponta da Praya and is $34^{\circ} 30'$ south of the Equator. On the opposite page we have given a painting⁶ of the Cape made on the spot, and in the following chapter we will describe the cape at greater length.

Chapter vii

Concerning the discovery of Cabo de Boa Esperança, where Africa ends.

It was with good reason that this promontory was called Cabo de Boa Esperança, for Bertholameu Diaz, who discovered it at the command of the late King John in the year 1488⁷, when he

¹ I.e. St Helena Bay.

² I.e. Cape St Martin, $32^{\circ} 43'$ S.

³ As Pacheco gives $32^{\circ} 30'$ S. for both the bay and the peak, and says that they are 12 leagues apart, it is obvious that they lie approximately east and west and not north and south.

⁴ I.e. Green Point in Table Bay, $33^{\circ} 54'$ S.

⁵ Cape of Good Hope is actually $34^{\circ} 21'$ S.

⁶ *Vide* Introduction, p. xxx.

⁷ No official report of Bartholomew Dias's voyage exists and neither Ruy de Pina nor Garcia de Resende describes it, and although João de Barros

saw that the coast here turned northwards and northeastwards towards Ethiopia under Egypt and on to the Gulf of Arabia, giving great hope of the discovery of India, called it the "Cape of Good Hope¹." Its latitude is $34^{\circ} 30'$ (or half a degree) south, as we have said above. The land is very high and shaped as appears in our picture. During its winter, from the month of April till the end of the month of September, it is very cold and stormy². The negroes of this region are heathen, bestial people, and they wear skins and sandals of raw hide; they are not as black as the negroes of Jalofo, Mandingua and other parts of Guinea. There is no trade here, but there are many cows, goats and sheep and there is plenty of fish. In this country there are large cats called "baboyes," almost of the size of a man, with large beards, which one has to see in order to believe³. Some say that this Cape is the promontory called Plaso⁴ of which Ptolemy spoke, but I do not think so; I think rather it must be the Montes Lunae in which Ptolemy says the Nile rises, for in the very position which Ptolemy gave to these mountains⁵, in $34\frac{1}{2}^{\circ}$ south of the Equator, there the promontory of Boa Esperança is found, so that the distance from the Equator in degrees answers to the Montes Lunae; moreover the shape of

gives a brief account his dates are unreliable. According to him (*op. cit.* Decade I, book III, chap. 4) Dias started in 1486 and returned in the December of the following year. Pacheco's date of 1488 receives corroboration from two marginal notes (recognised by scholars as being in the handwriting of Christopher Columbus), one in a copy of Pierre d'Ailly's *Tractatus de Imagine Mundi*, now in the Columbine Library at Seville, and the other in a copy of the *Historia rerum ubique gestarum* of Pope Pius II. Moreover Pacheco met Dias on his return voyage at Ilho de Principe and wrote *c. A.D.* 1505, whereas Barros did not write until *c. A.D.* 1550.

¹ The usual tradition, based upon Barros (*op. cit.*), is that Dias named it the Stormy Cape on account of the dangers and storms he and his men had passed through in doubling it, but that King John changed it to that of Cape of Good Hope because it gave promise of the discovery of India which had been sought for so many years.

² While gales are not infrequent accompaniments of winter, the mean winter temperature in the Cape region is 53° F., i.e. 4° F. higher than that of Lisbon.

³ I.e. the leopard. It is still quite common in Cape Province. *Vide* W. L. Slater, *The Mammals of South Africa*, vol. I, pp. 34-8.

⁴ I.e. Præsum Promontorium, Ptolemy's "farthest south" in East Africa: it is commonly regarded as being identical with C. Delgado to the south of Zanzibar.

⁵ *Vide* Introduction, p. xx.

this country answers to Ptolemy's description of the said mountains, so that they appear to be one and the same. For these reasons the Cape is easy to find; it can also be found by the course of the sun, for, at whatever time of the year a person may be here, the sun will always be to the north of him and the shadow to the south, the exact contrary of what happens in the part of the world in which we live, for with us the sun is always to the south and the shadow to the north. At this promontory Africa comes to an end in the Ocean [i.e. Atlantic], and is divided from Asia¹; from this point the boundary of Africa runs due north following the course of the Nile, through the midst of the Ethiopias of Trogouditas² to Damiata on the sea of Egypt; here, near Libya it turns and follows the coast of Carthage until it terminates in the great city of Cepta; thence it follows Tingitania and the coast of the Atlantic and the Ethiopias of Guinea, as described in this book, until it comes to an end again in the Cabo de Boa Esperança, as we stated in the middle of the fifth chapter of the first book. This is the circumference of Africa, as may be seen in the painting of the map of the world and general description given in that chapter. The circumference of Africa is 3,850 leagues; its length, beginning at the Rio de Çanaguá and running due east to the river Nile, is 840 leagues; its breadth, going due south from Tripoli in Berbery to the sea of Guinea at the Rio dos Escravos, is 500 leagues; and this is its circumference, length and breadth, as we have said, and these are its boundaries and coasts, which do not have gulfs running into them, as they do in Europe and Asia. All this we have ascertained in great detail. On this promontory of Boa Esperança herbs, like those of Portugal, are to be found: for here there is much mint and camomile and cress; there are also many other herbs of the same nature as those in this country [i.e. Portugal].

¹ In book 1, chap. 5, Pacheco indicates the limits of Africa commencing at the mouth of the Nile. In conformity with the general classical view he makes the Nile the continental frontier and since the Nile rose in the "Mountains of the Moon" which he erroneously identifies with the mountains of Cape Province, it was quite natural that he should regard the Cape as the southern boundary point.

² I.e. the Troglodytes (or cave-dwellers) who according to Herodotus and later writers inhabited a mountainous region in the Sahara near the Garamantes, some 30 days' journey south from Tripoli.

There are also wild olives, oaks and heather which yields berries, and other trees like ours. The cause of this [similarity] is the movement of the sun which gives life to all things, for Lisbon is about the same number of degrees north of the Equator as Cabo de Boa Esperança is south of it; for this reason Portugal and this country are alike in their trees and herbs and fruits. However, the seasons are opposite; when it is winter here, it is summer there, and when it is summer here, it is winter there; for the sun in its movement away from us, and towards us, being the same degrees distant from the Equator towards the Cape as towards the other [i.e. Lisbon] produces the same herbs and fruits and trees, although the seasons are different, as we have learnt by experience. *Aqui mapa.*

Chapter viii

Concerning the routes, landmarks and degrees as far as Ilheo da Cruz, where the discoveries of the most serene King John II ended.

Having now described Africa and Ethiopia and their circumference, length and breadth we must not omit Asia, even though it is so large that the greater part has always remained unknown both to the ancients and to us moderns who have discovered a good part of it. We will only write of the part navigated at the command of this most serene King our lord, who discovered Ethiopia under Egypt and a great part of the Arabian Gulf and the Persian Gulf and all the coast of Persia and a great part of India. We will begin at Cabo de Boa Esperança, where Africa is divided from Asia, describing the coast to Ilheo da Cruz, where our third book containing the discoveries of the excellent King John II ends. Our fourth and fifth books will deal with the discoveries of our Emperor Manuel, as we promised towards the end of our first Prologue. We will describe the routes and landmarks of this coast and the latitudes of its harbours and rivers, each in its proper order.

Item. It is apparent from our illustration and painting of Cabo de Boa Esperança that the bay or gulf formed by the cape turns eastwards. Fifteen leagues eastwards from the front of this cape is the point called Ponta de Sam Brandam¹, lying in the same parallel as the cape; the coast between them runs in a straight line; it is almost flat, but inland are some high rocky mountains which continue a great part of the way.

Item. Beyond Ponta de Sam Brandam is another point called Ponta do Infante², beyond which is an islet a quarter of a league from the mainland; on all this coast there is much fishing. Ponta de Sam Brandam and Ponta do Infante lie ENE and WSW and occupy seventeen leagues of the route; we believe that there is no commerce or barter in this land and will therefore not describe it in greater detail.

Item. Twenty leagues beyond Ponta do Infante there is a cape called Cabo das Vacas³, so called because of the many cows seen here. It lies east and west with respect to the aforesaid Ponta do Infante and is 20 leagues along the route as mentioned.

Item. Three leagues beyond Cabo das Vacas is a large bay, four or five leagues round, called Angra de Sam Bras⁴; the coast from Cabo de Boa Esperança to this bay runs ENE and WSW half the way and the rest of the way to the bay NE by E and SW by W, the latitude of Angra de Sam Bras being 35° 20' south. In this bay is an islet⁵ close to the shore, on which there are many very large sea-wolves, which have the shoulders, necks and manes of lions⁶; there are also in this islet sea-birds⁷ larger than ducks, covered with feathers but without wings for flying and their voice resembles the braying of an ass. This bay is protected from all the winds except those from the ENE to the SE which blow across the bay and make the sea very rough when they blow with violence. To the west this bay has a point of land

¹ I.e. Cape Agulhas, 34° 49' S.

² Still known in a corrupted form as Cape Infanta (34° 28' S.).

³ I.e. Cape Vacca.

⁴ I.e. Mossel Bay.

⁵ I.e. Seal Island.

⁶ I.e. the Cape Sea-Lion: "the old males have a well-developed mane of long hairs all round the neck: the females... have no trace of the mane" (vide W. L. Sclater, *The Mammals of South Africa*, vol. I, p. 120).

⁷ I.e. the Jackass Penguin (vide A. Stark and W. L. Sclater, *The Birds of South Africa*, vol. IV, pp. 518-19).

with some rocks on it which, when one is out at sea, seem islets, and one of them is like a small turreted castle¹. This is the first thing you see on approaching the said bay. The length of this point is rather more than a crossbow-shot and from this point a reef of rock runs out into the sea, a quarter of a league in length, and when the sea is rough it breaks on it; it almost closes the mouth of the bay. A mountain-range comes down to the sea at this low-lying point of land.

Item. A small river² flows into this Angra de Sam Bras; it flows from the mountains to the sea, and on its banks grow reeds and rushes, mint, wild olives and other herbs and trees like those of this kingdom [i.e. Portugal]. Our crews can here take in water and wood, cows, sheep and goats, which the negroes will sell to them for brass basins, small bells and red cloth; but one must guard against the negroes of this land, for they are very wicked and have several times attempted to kill our crews, and he who lands here should beware. Anyone entering this bay may anchor within the reef in four and a half fathoms on a clean sandy bottom a little over a quarter of a league from the shore. Four or five leagues out to sea from this bay he will find twenty-five and thirty fathoms, on a muddy bottom mixed with sand; there is plentiful fishing here.

Chapter ix

Concerning the routes and latitudes from Angra de Sam Bras to Ilheo da Cruz and on to Rio do Infante.

The time and trouble spent by us in composing this work have been well employed, since we were so fortunate as to have to describe the discoveries of the late glorious prince, King John. And although the coast discovered at his command yields no profit, we must not blame him for this; the blame lies with the land, which is almost deserted and produces nothing to make the

¹ The rocks of Cape St Blaize (*vide Africa Pilot*, Part III, p. 81, 9th edition).

² Hartenbosch River (?).

heart of man glad. The less profit the region discovered by him yields, the greater praise is due to him; for, had he obtained great wealth from these regions, there would not have been lacking censors and critics to say that he made the discoveries in his own interest; but since we know that his only profit was the great expense and the opening of a way for the discovery of India, we are confident that the enterprise of this most serene prince was induced by love of glory and magnificence and a desire to explore lands hitherto utterly unknown, and by no other cause. Having said this, we will proceed with our plan.

Item. Fifteen leagues beyond Auguoadá¹ de Sam Bras is the small bay called Angra d'Alaguoa², so-called because it has a marshy lake. All the land along the coast from Auguoadá de Sam Bras to this bay is flat, but inland there are very high mountains³. Angra de Sam Bras and Angra d'Alaguoa lie east and west 15 leagues along the route, as stated, and this small bay contains an islet⁴ where many sea-wolves and many birds live. All this land is thinly wooded and moderately populated, but there is no trade.

Item. Angra d'Alaguoa and another larger bay⁵ containing two lakes lie ENE and WSW and occupy twelve leagues of the route. Only small vessels can enter this Angra d'Alaguoa, because of its many shallows; its latitude is $34\frac{2}{3}^{\circ}$ south of the Equator. No profit is to be obtained from this land, so that I will not waste time in describing it further.

Item. From Angra d'Alaguoa to Angra do Rico⁶ is fifteen leagues in an E by NE direction. Whoever comes this way should beware of two dangerous shallows of rock on which the sea breaks about half-way along the route, nearly a league from the shore. The Angra do Rico is nearly as large as the above-mentioned Angra de Sam Bras; it can be recognised by the three

¹ I.e. "the watering-place."

² Plettenburg Bay. The mouth of the Pisang River, which enters the bay, is frequently closed by a bar; behind this the waters accumulate to form a temporary lake.

³ These are the Outeniqua Mountains (*vide Africa Pilot*, Part III, p. 92).

⁴ I.e. Beacon Islet.

⁵ St Francis Bay. The lakes of which Pacheco speaks are formed by the overflow of the waters of the bar-obstructed rivers.

⁶ I.e. Algoa Bay.

islets at its entrance; the bottom in places is dirty and a ship anchoring there should take soundings.

Item. Five leagues beyond the Angra do Rico is an islet a little over half a league from shore, called Penedo das Fontes, because Bertholameu Diaz, who discovered this land at the command of the late King John, found two springs of excellent fresh water here; but this rock is called also Ilheo da Cruz¹, because the same Bertholameu Diaz placed here a pillar of stone² a little taller than a man with a cross on top of it and a triple inscription, in Latin, Arabic and Portuguese, declaring that in the year of Our Lord Jesus Christ 1486 (and in so many years after the creation of the world), King John ordered Bertholameu Diaz, captain of his ships, to discover this coast. This pillar can be seen out at sea when one is near the island. The mainland round this island consists of sand-dunes but the adjoining land beyond these dunes is all very green and low, with woods and some fields. Beyond this land along the coast there is nothing but sand-dunes, some large, some small. This Ilheo da Cruz is nearly half a league from the shore; the coast from Angra do Rico thither runs NE by E and SW by W and occupies 5 leagues of the route, as we have said. The latitude of the said Penedo das Fontes is 33° 45' south of the Equator.

Item. Twenty-five leagues beyond the Ilheo da Cruz is a small river called Rio do Infante³, so called because when it was discovered by Bertholameu Diaz a certain Joham Infante, a member of his crew, was the first to land. Eight or ten leagues from the Ilheo da Cruz are two islands called Ilheos Chãos⁴; they lie two and a half leagues from the shore. The landmarks of this region are these: the sand-dune coast two leagues beyond the Ilheo da Cruz, and a black patch on the mainland having a large sand-dune to the north and a tongue of black coloured land along the shore, which appear when these Ilheos Chãos are to the NE. These islets are almost on a level with the sea, but

¹ St Croix Island, but cf. Ravenstein, *op. cit.* p. 646.

² No "padrão" has ever been recovered from this neighbourhood. It is possible that Pacheco is confusing St Croix Island with Cape Padrone, some little distance to the east, where Dias set up a stone pillar dedicated to S. Gregorio.

³ I.e. Great Fish River.

⁴ I.e. Bird Islands.

inland the country is very elevated. From here to the Rio do Infante is fifteen leagues; midway there are the mouths of three small rivers¹. At this Rio do Infante the navigation and discovery of the late King John ended. This river and the Ilheo da Cruz lie NE by E and SW by W, 25 leagues apart, as already stated. The latitude of the river is $32^{\circ} 40'$ south of the Equator.

This most serene prince died in the year of Our Lord Jesus Christ 1495 in the town of Alvor in Algarve on the 25th day of October. The years of his life were forty years and five months and twenty-five days, of which he reigned only fourteen years, one month and twenty-eight days. He is buried in the monastery of Santa Maria da Vitoria (which is also called "Batalha") with his father King Afonso V, in the Chapel of the Chapter.

¹ Viz. Bushman, Kariega and Kowie Rivers.

FOURTH BOOK

THE BEGINNING of the FOURTH BOOK of the Esmeraldo De Situ Orbis, *concerning the discoveries of the most serene prince, King Manuel our lord, the first of this name to reign in Portugal. Here follows, firstly, the Prologue.*

ALTHOUGH the nature of the subject permits us to finish the work we have begun and our spirit is willing, our scholarship is so poor that we cannot attempt to fully describe the excellence of our Emperor Manuel. For as agriculture promises sustenance to mortal men, even so great deeds promise them an eternity of noble fame. The singular qualities with which he was endowed by nature are universally known; for justice tempered with moderation was given him as a rich garment, and plentiful wisdom to administer it in a manner worthy of praise. He was benevolent towards his subjects, being easy of approach and kindly, yet from his youth he was marvellously fearless withal and he performed great deeds with manly spirit and unstinting generosity. He was a Catholic, living a pure and honest life, keeping strictly the holy vow of matrimony and conjugal chastity; therefore Our Lord blessed him with noble offspring. He was the first King of Portugal to beseech the Holy Father, Pope Alexander VI, to give a dispensation to the Knights Commanders of the Order of Christ and of S. Bento in these realms, to allow those who from that time took the habit in these Orders to marry, which request was granted. (Before this the professed friars were strictly forbidden to marry.) The service rendered to God in this by this most serene prince is worthy of continual praise, for whereas, when they were unable to marry, they kept mistresses and there was much lust and sin, they are now allowed to marry. Portugal must be considered fortunate to possess so great a blessing; for it is certain that this our prince was given us by divine grace for the tranquillity and

good governance of our country, and this favour was granted at the hand of the supreme Creator, Who sent him from His altars and holy places. The greatness of his excellence is such that it ill befits our poor understanding to undertake the heavy task of recording his praises; rather we must leave the main part of them for the writer of his chronicle. As we have written the three books concerning the other princes who undertook and began, without accomplishing, this navigation and conquest of the route to India, we will proceed to write the fourth and fifth books from the beginning of King Manuel's conquest and discovery of the new lands in the strange regions of Asia and the shores of India, which the princes of old, his predecessors, and even earlier princes of other nations, with all their wealth, knowledge and courage, were never able to reach. In the second chapter below we will tell how the first fleet was fitted out, which finally discovered the hitherto unknown Ethiopia under Egypt and the distant kingdoms of India, regions and lands which it is pleasanter to hear about than to explore. The device of this prince—a sphere which we set here—was clearly a prophecy of what we have seen in the attainment of his Highness' ambition. May God increase his glory.

Aqui a esphera.

Chapter i

How some ancient writers declared that the region of the Equator and the adjacent country were uninhabitable.

Our own predecessors and those who lived even earlier in other countries could never believe that a time would come when our West would be made known to the East and to India as it now is. The writers who spoke of those regions told so many fables about them that it seemed utterly impossible that the seas and lands of India could be explored by the West.

Ptolemy in his portrayal of the ancient tables of cosmography writes that the Indian Sea is like a lake¹, far removed from our

¹ *Geographia*, book VII, chap. 5.

western Ocean which passes by southern Ethiopia; and that between these two seas there was a strip of land¹ which made it completely impossible for any ship to enter the Indian Sea. Others said that the voyage was so long as to be impossible and that there were many sirens and great fishes and dangerous animals which made navigation impossible.

Both Pomponius Mela (at the beginning of the second book and also in the middle of the third book of his *De Situ Orbis*²) and Master John Sacrobosco, an English writer skilled in the art of astronomy (at the end of the third chapter of his treatise on the sphere³), said that the country on the Equator was uninhabitable owing to the great heat of the sun, and since it was uninhabitable for this reason it could not admit of navigation. But all this is false and we have reason to wonder that such excellent authors as these, and also Pliny⁴ and other writers who averred this, should have fallen into so great an error; for they all allow that India is the real East and that its population is without number. Since the real East is the Equator, which passes through Guinea and India, and since the greater part of this region is inhabited, the falsehood of what they wrote is clearly proved, for at the Equator itself experience has shown us that the land is thickly populated. Since experience is the mother of knowledge, it has taught us the absolute truth; for our Emperor Manuel, being a man of enterprise and great honour, sent out Vasco da Guama, Commander of the Order of Santiago, one of his courtiers, as captain of his ships and crews to discover and explore those seas and lands concerning which the ancients had filled us with such fear and dread; after great difficulty, he found the opposite of what most of the ancient writers had said. Passing beyond Rio do Infante, where, as we have said the discoveries and navigation of the most serene King John ended, Vasco da Guama sailed with his four ships round the unknown coast of Ethiopia under Egypt and discovered the Ethiopian town of Melinde, where he heard news

¹ Part of "Terra Australis" of later reports, believed to extend right round the world.

² Actually the references come in book I, chap. 4, and book III, chap. 7.

³ *Tractatus de Sphaera*.

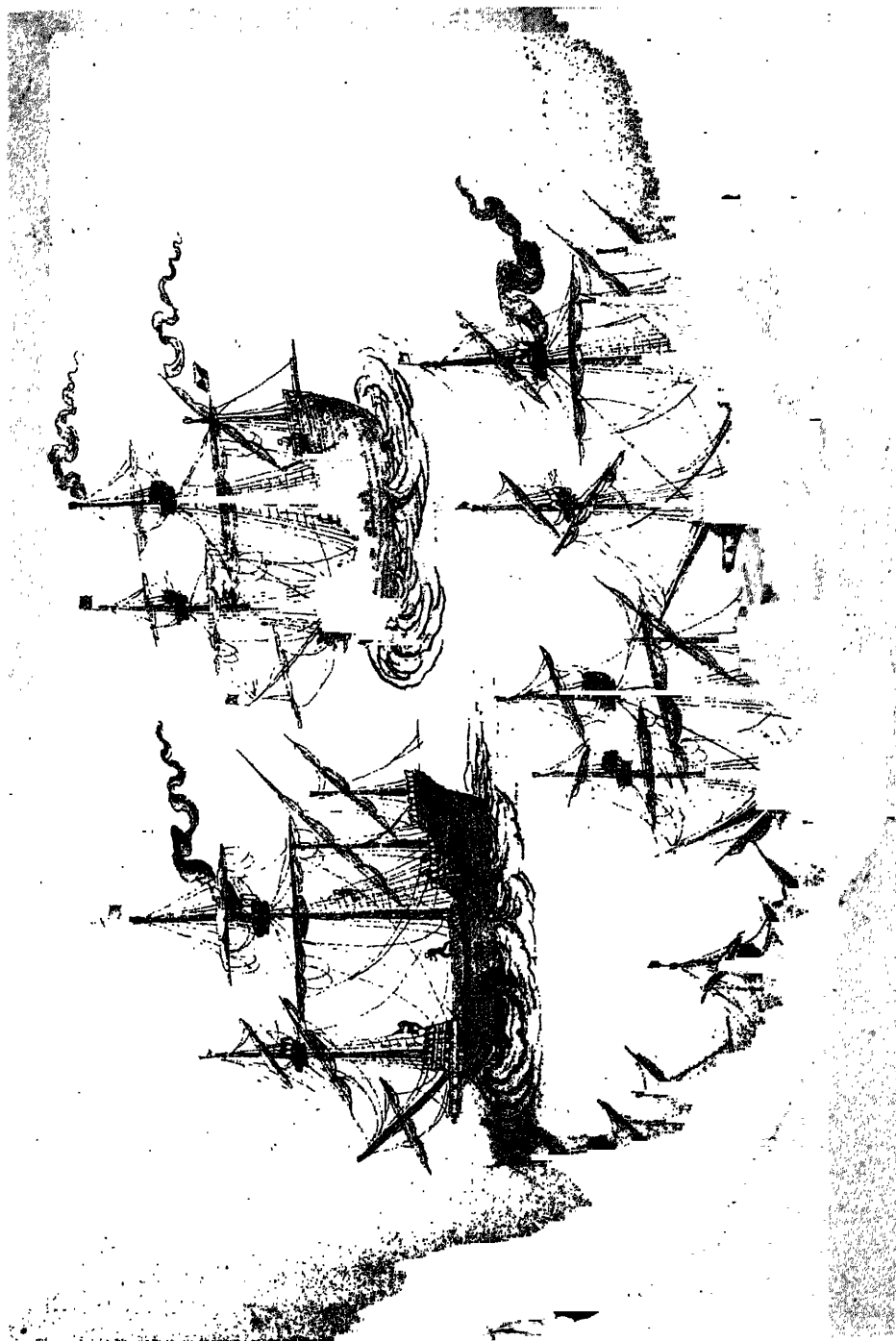
⁴ *Op. cit.* book II, chap. 68.

of the India he was in search of; thence journeying 700 leagues across the great gulf, he discovered a part of the sought-for land of Lower India.

Chapter ii

Concerning the four ships which our lord the King sent to discover India.

It was not desirable that too many or too large ships should be sent out on this voyage of discovery; accordingly our lord the King ordered the construction of four ships, the largest not to exceed a hundred tons, for the land being utterly unknown it was unnecessary that they should be larger. The reason was that they might be able to enter and leave any place on the coast easily, which they could not do if they were larger. They were built by excellent masters and workmen, with strong nails and wood; each ship had three sets of sails and anchors and three or four times as much other tackle and rigging as was usual. The cooperage of the casks, pipes and barrels for wine, water, vinegar and oil was strengthened with many hoops of iron. The provisions of bread, wine, flour, meat, vegetables, medicines, and likewise of arms and ammunition, were also in excess of what was needed for such a voyage. The best and most skilful pilots and mariners in Portugal were sent on this voyage, and they received, besides other favours, salaries higher than those of any seamen of other countries. The money spent on the few ships of this expedition was so great that I will not go into detail for fear of not being believed. The only return received by the prince for this outlay was the knowledge that some part of Ethiopia under Egypt and the beginning of Lower India had been discovered. Thus Vasco da Guama set out on this holy enterprise as captain-in-chief of four ships by virtue of the sacred majesty of this most serene prince, who sent him forth from the excellent city of Lisbon on Saturday the eighth day of June in the year of Our Lord Jesus Christ 1497; he returned two years one month and one day later and forthwith received



PORTUGUESE SHIPS FROM THE "ROTEIRO" OF DOM JOÃO DE CASTRO FROM INDIA TO SUEZ, 1541
British Museum, Cotton MS., Tib. D. IX

great rewards and favours, with such honour and liberality as became the excellence of our Emperor Manuel, who sent him out. For his Highness conferred on him the title of Dom Vasco da Guama, which he did not previously possess, and gave him a coat of arms to honour his nobility; this serene prince also made him Admiral of the Indian Ocean, with jurisdiction over it, and gave him an income of 3,000 gold crusados, besides other favours, revenues, honours and exemptions. Thus his reward to Dom Vasco for the great services which he had rendered was in keeping with the magnanimity of his nature, endowed as he was with great goodness.

Chapter iii

Concerning the fleets which our lord the King sends out yearly to India since its discovery.

Great achievements cannot be hidden, for they are seen by all, and their praise must be recorded so that they should not fall into oblivion; achievements so great as those of this most serene prince have every reason to be made known. His Highness orders the equipment of great fleets of twenty-five and thirty large ships, more or less according to the times and occasions; they are well manned and equipped, as well as, if not better than, the first ships sent out. With these he has conquered, and daily conquers, the Indian seas and the shores of Asia, killing, destroying and burning the Moors of Cairo, of Arabia and of Meca and other inhabitants of the same India, together with their fleet, by which for over 800 years they controlled their trade in precious stones, pearls and spices. Not only has he done this, but he has ordered the construction of five fortresses with their holy houses of prayer, where the blessed sacrament of the body of Our Lord Jesus Christ is daily celebrated. As a result many Indians, who were formerly ignorant of it, have been converted to the holy Catholic faith and have become Christians, and the evil sect of Mahomet is daily being destroyed and diminished. The Moors and their fleet are so confounded that

the Venetians, who were accustomed to obtain spices and other merchandise from them and furnish Europe and Africa and part of Asia, are now totally deprived of this trade. But this fortunate prince, besides the great honour and eternal fame from his many victories in the conquest of these regions, receives yearly from his fleet 30,000 to 40,000 quintals¹ of spices and drugs, and many pearls and precious stones and other articles of great value, with which the whole world is furnished. Thus we may say that Almighty God by a singular privilege chose him from all the other princes of Christendom to spread His Catholic faith through these regions for His service. For it is certain that the holy, divine and ancient religion disseminated in these parts by the apostle St Thomas² has been entirely lost. We and our successors in the future, and all nations, must observe this marvellous and miraculous fact, that the 4,000 leagues of perilous navigation between Portugal and India were conquered and subdued and our Catholic faith spread through them at the bidding of this most serene prince. This is certainly the doing of Our Lord, Who gave him the strength of spirit and wisdom for so great an enterprise; for achievements so great were never performed by a timid, weak or avaricious person, but only by a man of courage and magnanimity. And when one considers achievements as great as these, the famous deeds of Alexander the Great and of the Romans are partly obscured by this great and holy conquest.

Chapter iv

Concerning the voyage and navigation of ships bound for India.

In three months of the year principally should ships bound for India be ready to sail, January, February and March; and the best of these is February, although ships sometimes sail as late as April and make a prosperous voyage; but they should, if

¹ The Portuguese equivalent of the English hundredweight.

² *Vide* book I, Prologue, p. 5 note.

possible, avoid this month, for it is rather late and they may encounter difficulties on such a long voyage. The fleet for India should have all its casks, pipes, barrels and other vessels reinforced with hoops of iron, eight iron hoops to each barrel, for hoops of wood do not last long. Of provisions I do not speak, for it is known by now what is required for a voyage which usually lasts eighteen or twenty months. In the twenty-third chapter of our first book we have stated that a fleet leaving the excellent city of Lisbon, in which I, the author, Duarte Pacheco, was born, and where the fleets for the navigation to India are fitted out, should sail SSW 200 leagues, when they will be in latitude 28° north, off the seven islands of the Canaries. The fleet can pass these at a league, or much less than a league, from Ponta d'Andia¹ in the Isle of Forte Ventura and will then steer S by E. After forty-five leagues it will make the Angra dos Ruivos on the mainland, the landmarks of which we have described in the twenty-third chapter of the first book; they are the three hills of sand which rise above it, and its latitude, 25° north of the Equator. Three leagues off this bay there is fifty fathoms of water with a sandy bottom, and here there is plentiful fishing for the sustenance of the crews. And from here the fleet must sail along the coast in search of Cabo Verde as we shall say below.

Item. By standing three leagues out at sea from Angra dos Ruivos and sailing SW by S along the coast, without touching land for ninety leagues it will be off Cabo Branco, of which we spoke in the last paragraph of the 23rd chapter of the first book. The cape will then be eighteen leagues distant to the East, the latitude at that exact point being $22^{\circ} 20'$ north; the pilot must be careful to take the latitude accurately in order to avoid all possibility of error.

Item. The ship which is in this position off Cabo Branco must now sail 120 leagues S by E; it will then be off Cabo Verde, that is, $14^{\circ} 20'$ north of the Equator. The cape will be recognised by its latitude and by the painting and landmarks which we gave in the 28th chapter of the first book. You can anchor here and take in water and wood in the Angra de Bezeguiche, as you will see in the said chapter and illustration.

¹ I.e. Jandia Point.

Chapter v

Concerning the ocean route to India from Cabo Verde.

For the better understanding of our work we should state that the basis of the work was first to describe the whole of the coast of Ethiopia of Guinea and to tell of its discovery by the princes mentioned in this book, at whose command the navigation of these parts was, and still is, undertaken. We have already described the route along the coast to Rio do Infante, where the discoveries and navigation of the late most serene King John ended. There is, however, another shorter and more advantageous route from Cabo Verde across the ocean to India; it must therefore be described, so that nothing of importance shall be left unsaid. From Rio do Infante we will describe the coast in the direction of India which our lord the King discovered.

Item. A ship bound from Cabo Verde to India should, with a favouring wind, sail due south 600 leagues, at the end of which it will be 19° south of the Equator; from this point, which is 850 leagues from Cabo de Boa Esperança, its course should be ESE. In this way it will double the cape forty leagues out to sea, in a latitude of 37° south, Cabo de Boa Esperança then being to the NE by N, which is the direct course to the cape. It is only when the pilot is 37° south that he should steer NE, for if the latitude is less he will, by so doing, turn back to the coast of Guinea, except when he is in a latitude of 35° south, when the cape will be to the E and he will be opposite it. When, after reaching the latitude of 37° south, he has steered NE and come in sight of the cape, he must then coast along the shore to the Rio do Infante; this route is described in the eighth chapter of the third book and in the succeeding paragraphs. If he wishes to stand fifteen or twenty leagues out to sea, he may do so, but he should act throughout with caution and await favourable winds; when the wind is adverse, reason, prudence and experience will teach him what should be done. In crossing the ocean from Cabo Verde he should keep a sharp look-out night and day for the great thunderstorms, which are accompanied by

winds of extraordinary violence; as soon as anyone sees a flash of lightning or a black cloud he should furl sail until the violence of the wind is past, for if he fails to do this, the ship may be wrecked, as others, through carelessness, have been wrecked before it.

Chapter vi

Concerning the discoveries of our King beyond the Rio do Infante.

Our new task is to describe the discoveries of the most serene prince King Manuel our Sovereign beyond the Rio do Infante, including the whole of Ethiopia under Egypt, Arabia Felix, Persia and the manifold interests of the most wealthy kingdoms of India, together with the victories obtained there. Thus we will proceed with our plan on this toilsome journey, relating the truth as we have learned it from experience.

Item. Rio do Infante lies...[the MS breaks off here].

APPENDICES I to III

I. THE SENEGAL-NIGER-NILE CONTROVERSY

It is evident from his various allusions to the Senegal that Pacheco shared the prevailing confusion about the hydrographical systems of West Africa.

The idea of a western branch of the Nile was, of course, not new: it had been put forward in antiquity (e.g. by Pliny, who made the branch rise in the Atlas Mountains, *Natural History*, book v, chap. 10). Moreover it was not altogether without foundation, for as early as Herodotus's time some young Nasamonian travellers had penetrated southwards across the Sahara to "a great river...running from west to east..."—presumably the Niger (Herodotus, *History*, book II, chap. 32). For the most part, however, classical opinion followed Ptolemy, who held the Nile and Sudanese systems to be discrete.

It was not until the tenth and eleventh centuries that the idea of a western branch of the Egyptian Nile was seriously put forward again—this time by Arab geographers who were in possession of the latest knowledge of the Saharan caravan routes. Edrisi, although not discussing the subject directly, leaves the reader in no doubt as to his own view. Thus, he says "the Nile in this country [i.e. W. Sudan] flows from the east to the west." Ships entering its mouth with salt "ascend as far as Silla, Tacrou, Barisa and Ghana." Following the Nile eastwards he speaks of "a place where the two Niles separate, that is to say, first the Nile of Egypt which crosses the country from north to south...and second the branch which flows from the east and flows towards the western extremity of the continent" (*Description de l'Afrique et de l'Espagne...* Translation by R. Dozy and M. J. de Goeje, *passim*). Leo Africanus, the last of the great mediæval Arab geographers, makes the following observations: "our cosmographers affirm that the river of Niger is derived out of Nilus, which they imagine for some space to be swallowed up of the earth and yet at last to burst forth into..."

a lake. . . . Some others are of opinion that this river beginneth westward to spring out of a certain mountain and so running east, to make at length a huge lake, which verily is not like to be true, for they usually sail westward from Tombuto to the Kingdom of Guinea, yea and to the land of Melli also. . . ." (*History of Africa*, book I, p. 125).

With increasing knowledge of the West African littoral, other alternatives were proposed. John Pory, in his *Introduction* to Leo's *History of Africa*, written about 1600, says: "The river of Niger, running through the land of the Negroes. . . is now esteemed by Paulus Iovius to be Gambia and by Cadamosto the river of Senega: but that both of them are deceived, it is evident out of the description of Sanutus, who putteth down the two aforesaid rivers severally and thinketh Niger to be that which is now called Rio Grande [i.e. Jeba R.]. This river taketh its beginning, as some think, out of a certain desert to the east, called Seu, or springeth rather out of a lake and after a long race, falleth at length into the western ocean. . . . Senega, or Canaga, a most notable river. . . for the length thereof comparable to Nilus. . . springeth, according to John Barros, out of two lakes, the greater whereof is now called the lake of Gaoga. . . as also out of a river named by Ptolemy Ghir. . . . Gambia or Gambea, a very great river lying between Senega and Niger. . . fetcheth his original from the lake of Libya and from the fountains which Ptolemy assigneth to the river of Niger. . ." (pp. 19 *et seq.*).

The recrudescence of the idea of a dual Nile during the latter part of the Middle Ages is, in view of the prominent part played by the Senegal-Niger systems in trans-Saharan commerce, readily understood. The fact that it was not until the nineteenth century that the separateness of the Senegal and the Niger Rivers from one another and from the Nile was discovered ceases to be surprising when we recall:

(a) The relative decline of trans-Saharan commerce after the opening up of the sea routes.

(b) The reluctance of the negro native to enlighten the trader, whether Moslem or Christian, on the country beyond the Savannah Zone—the source of his gold (*vide* Appendix No. III).

(c) The change in the character of the country south of the latitude of Timbuktu and its general unsuitability, both climatically and botanically, to the desert-loving Arab and his desert-loving camel.

(d) The confusion of the native negroes' terms for lake, water and river, leading traders to conclude that all the great Sudanese rivers were inter-linked by great lakes in which they had their sources.

II. "THERE ARE OTHER SNAKES A QUARTER OF A LEAGUE LONG"

In this single statement, startling in its departure from the author's well-deserved reputation for sobriety, Pacheco reveals both the vitality of mediæval mythology and the credulity of the Renaissance mind. That men should, in the same breath, be able to speak with almost the exactitude of a modern Pilot book about the navigability of the Senegal River and the existence of mile-long serpents is not very remarkable, however, when we recall the popularity of the "Mirabilia"—wonder books—and the "Bestiaries" throughout the Middle Ages. The reading of these enchanted not only the common people, but men of education, and inspired the pictorial illustration of many of our most famous "mappæ mundi," e.g. the Hereford and Ebstorf maps. Pliny's *Natural History*, Solinus's *Collectanea* and the *Treatise on Marvels*, attributed to Aristotle, were among the most read works of the time. Aristotle's authority was so great with the Portuguese of the fifteenth century that even the Proctors of the People were quoting his work in the Cortes (*vide* Santarem, quoted in Zurara, *op. cit.* Hakluyt Society Edition, p. 338). The seamen of our period, therefore, were steeped in the teratological traditions of antiquity, and it is difficult to over-emphasise the domination exercised in mediæval and early Renaissance thought, in geography, natural history and ethnology, as well as in other departments, by the pseudo-science of the "Mirabilia." Zurara comes under it, even though he is somewhat more cautious than Pacheco. In chap. 52 he tells us, for instance, that the hornbills of the Ilha das Garças (i.e. Heron

Isle near Tider Isle) have "mouth and maw . . . so great that the leg of a man, however large it were, would go into it as far as the knee." In chap. 60 he further declares that the size of the African elephant is "so great that the flesh of one would make a good meal for 2,500 men."

Where did Pacheco derive the authority for his statement? Strabo speaks of Ethiopian serpents whose length he does not define but which are "so large that even grass grows upon their backs" (*Geography*, book XVII, chap. 3, para. 5). Pliny, another of his standard authorities, speaks of serpents "that seize and swallow birds that are flying above them, however high and however rapid their flight" (*Natural History*, book VIII, chap. 14). With such imaginative precedents as these, it was not difficult for Pacheco to persuade himself of the existence of even larger reptiles. It would seem, however, from his remarks about the incredibility of these things to those that have no experience of them that he expected some of his readers to be less credulous than others.

III. THE SILENT BARTER

The silent barter of the Sudan which Pacheco describes at such length is as old as it is mysterious; moreover, literature and tradition show it to have been a widespread commercial custom between peoples who did not know or entirely trust each other. Herodotus described it as being a well-established practice in his day (*History*, book IV, chap. 196), and we read of it in various forms at intervals thereafter. Cosmas Indicopleustes wrote of it in the sixth century, Edrisi in the twelfth, Cadamosto in the fifteenth, Captain G. F. Lyon in the early nineteenth, and Mary Kingsley at the beginning of the twentieth century. Yet one and all are unable to claim personal acquaintance with the parties engaging in it, and only very few of them actually encountered first-hand evidence of it.

Where was the land of this barter? It is not without significance that Pacheco tells us the distance, but not the direction; it was from the frontiers of Mandingua. Edrisi is no more helpful, for he only says that it was 8 days' journey from Ghana,

again without giving the direction. (Moreover Ghana is a lost city.) However, with the help of Cadamosto's narrative (*op. cit.* pp. 57-8) and a statement of R. Jobson's (*op. cit.* p. 301) the region of the Upper Volta would seem to be the rendezvous of the silent traders. The Bobo-fing and Lobi tribes who inhabit it and collect alluvial gold are even to-day described as being very taciturn and retiring, and have only recently allowed African traders into their country. It is furthermore a region infested by the tse-tse fly and therefore unhealthy for man and beast, and it lies in the tall grass savannah zone, that is, in the frontier zone between Moors and Berbers on the one hand and the negroes on the other. As these "frontier" peoples were frequently raided by their northern neighbours and sold into captivity, it is scarcely to be wondered at that they should prefer to remain unseen when bartering their gold; but whether the Sudanese slave trade gave rise to the silent barter or no, we have no means of telling. According to one recent observer, it originated, in all probability, from a sense of personal insecurity and has fetish in it, the natives holding it safer to leave so dangerous a thing as trafficking with unknown beings—white things that were most likely spirits, with the smell of death on them—in the hands of their gods (*vide* M. Kingsley, *West African Studies*, pp. 210-12).

If mystery surrounds the exact location of the gold marts, it has succeeded in completely enveloping the participants in this trade. How came it about that these traffickers were thought to be dog-headed? Two possibilities suggest themselves. In the first place the Arab designation for the pagans of this region (the Lemlem of Arab writings) was "Benicaleb"—son of a dog! Several early Renaissance maps of this region portray a cynocephalic monarch south of the western Nile and east of the black (but Moslem) king of Melli (*vide* Este and Borgian World maps). The second possibility is that the men with "the faces and teeth of dogs and tails like dogs" are not men at all but baboons! These animals have a remarkably dog-like face and one species of them—West Africa boasts of several—has a tail and a *black* face (i.e. the Anubis baboon). Further, these animals wander about in companies, excavating the roots of grasses and other

plants and leaving *small holes* behind them (*vide* H. O. Forbes, *A Handbook of the Primates*, vol. 1, pp. 253 *et seq.*, and S. Zuckerman, *Social Life of Monkeys and Apes*, p. 203). The fact that the whole transaction was concluded without any direct intercourse and *at night*, may well have given rise, in the minds of the greatly intrigued Moors, to the notion that the invisible traders were not ordinary men, but akin to the shy and elusive baboons of which they had doubtless caught many a fugitive glimpse.¹

¹ A fuller discussion on the source of the gold and the locality of the silent barter will be found in an article by E. G. R. Taylor, entitled "Pactolus: River of Gold," *Scottish Geographical Magazine*, 1927.

APPENDIX IV

NOTE ON THE MAP TO ILLUSTRATE THE *ESMERALDO DE SITU ORBIS* OF DUARTE PACHECO

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The map represents an attempt to plot the coastal route from Ceuta to the Cape of Good Hope and beyond, as worked out by the Portuguese navigators during the fifteenth and very early sixteenth centuries, and described in the text of the *Esmeraldo*. The map shows also the coast of Africa as now mapped, so that comparisons may be made.

It is drawn on two sheets, partly for convenience, but also because, while there is a remarkable measure of agreement between Pacheco's coastal outline and the modern map north of the equator, south of that line the agreement is not nearly so close. It is drawn on Mercator's projection, for the following reasons: (1) the most reliable element in the plotting of Pacheco's outline, especially north of the equator, would seem to be the bearings; (2) with parallels and meridians drawn at every half-degree it is comparatively easy to plot distances with reasonable accuracy; (3) plotting Pacheco's and the modern outline upon an orthomorphic projection enables appreciation and comparison of shapes to be made. Pacheco furnishes the following material from which to plot: compass bearings, distances in leagues, astronomical latitudes and through bearings. He also describes landmarks in detail.

Bearings. Pacheco uses a "card" of 32 points, on two occasions only using half-points. His bearings, therefore, are probably correct to within three or four degrees each way, within the limits of the accuracy of his instruments. From Arzila to Cape Kantim there is apparently considerable discrepancy between his outline and the modern map. From the

latter point to about 6° S. they agree remarkably well. South of 6° S. Pacheco's outline, plotted by bearings and latitudes, is a fair reflection of the modern outline, but it deviates steadily westwards, until in the latitude of the Cape of Good Hope there is a difference in longitude of slightly more than four degrees. There would appear to be two reasons for this: (1) the greater body of knowledge and experience possessed in respect of the journey as far as the equator by comparison with that available for the southern part; (2) compass variation.

Pacheco gives no indication in the text that bearings had been rectified, nor does he mention compass variation, though he and his contemporaries were without any doubt well aware of it. "For the navigation of Guinea [the Portuguese] made compasses corrected for a deviation north and a quarter north-east" (E. G. R. Taylor, *Tudor Geography*, p. 68), that is, for a magnetic variation of $11\frac{1}{4}^{\circ}$ E. This means that while the needle pointed to $11\frac{1}{4}^{\circ}$ E. the card itself was correctly oriented, true north and south. But obviously the card would remain correctly oriented only so long as the variation was constant. As the variation changed so the rectified card would change also. Thus Pacheco, south of Arzila, gives a bearing South by West when the true bearing is much nearer S.S.W. Evidently, as they sailed farther south, the variation became for a time more easterly, so the bearing noted would be south of the true bearing. This, and not faulty observation, would account for the apparent incorrectness of the coastal outline in this region. Moreover, such variations, while affecting the plot of the route, would not affect navigation along that route, providing the same "make" of compass were used, and magnetic variation in a given region remained the same.

Using this illustration it can be argued that from Arzila to Cape Kantim the rectified compass swung at first more to the east and then recovered itself, and that, from Cape Kantim, as far as 6° S., it remained approximately true to itself. There is evidence to support this argument. But from 6° S. to the Cape of Good Hope the plot by bearings and latitudes suggests a marked decrease of variation eastward, and this is contrary to the testimony of sixteenth-century voyagers. "In the island

called Insula Corvi [i.e. Azores] it [the compass] declineth easterly 15 degrees" (Cunningham's *Cosmographical Glasse*, quoted by Professor Taylor, *Tudor Geography*, p. 27). Captain John Lok, writing in 1554, on his voyage to Guinea, says, "Note that in 45 degrees the compass is varied 8 degrees to the west. Item, in 40 degrees the compass did vary 15 degrees (? E. or W.) in the whole. Item, in 30 degrees and a halfe the compass is varied 5 degrees to the weste" (Hakluyt's *Voyages*, vol. iv). And one Thomas Stevens, writing from Goa in 1579, describing his voyage thither, says, "The variation of the needle or compass, which in the region of the island of St Michael is just north, and thence swarveth toward the east so much that betwixte the meridian aforesaid and the point of Afrike it carrieth three or four quarters of 32, and againe in the point of Afrike a little beyond the point that is called Cape das Agulias it returneth againe unto the north, and that place passed, it swarveth again towards the west, as it did before proportionally" (Hakluyt's *Voyages*, vol. iv). It is unlikely that in eighty years compass variation in these latitudes would have changed from "three or four quarters" eastward to almost as much westward, especially in view of the fact that north of the equator the variation remained still east. There is, therefore, a discrepancy between Pacheco's and the true bearings, in these latitudes, which is not easily explained.

The plot by direction and latitudes, south of about 17° S., has been adjusted for a general average decrease of magnetic variation eastward of 6°, bringing the Cape of Good Hope approximately to its correct longitude. So adjusted the plot gives a fair reflection of the modern outline.

Distances. Pacheco expresses distances in leagues, 18 leagues to a degree of latitude. This was not the generally accepted Portuguese figure, which was 17½, but Pacheco's was the more accurate.

As with bearings, so with distances. As far as Cape Three Points there is very fair agreement. Between Cape Verde and Cape Palmas, Pacheco's and the modern outline are almost identical. From Cape Three Points eastwards along the Guinea Coast as far as Fernando Po there is increasing discrepancy, and

south of the equator distances seem to have gone wrong altogether. It must have been difficult to estimate distances in those days. In respect of the coast as far south as Sierra Leone, sailors had gathered much information about winds, currents and tides; they had had many years in which to check their results and to compare notes about it; the behaviour of vessels, more or less fresh from their home ports, was more reliable. In equatorial regions alternate storms and calms must have made accurate reckoning extremely difficult. Thomas Stevens, quoted above, writes about this part of his journey as follows: "We arrived at length under the coast of Guinie...which is from the sixt degree of the equinoctial...sometimes the ship standeth there almost by the space of many dayes, sometimes she goeth, but in such order that it were almost as good to stand still. And the greatest part of this coast not cleare, but thicke and cloudy, full of thunder and lightening." Moreover, they were sailing generally east and west, and since very few indeed amongst them could find longitude at all, and none of them accurately, they had no check upon the amount of easting made. So Stevens again: "You know that it is hard to saile from east to west...because there is no fixed point in all the skie whereby they may direct their course. Wherefore, partly by their own experience and pondering withal what space the ship was able to make with such a wind and such direction, and partly by the experience of others, whose books and navigations they have, they gesse whereabouts they be touching the degrees of longitude, for of latitude they be alwayes sure." And this was in 1579.

South of the equator Pacheco's distances are very badly out. It can only be assumed that he had very much less information about this part of the journey and so had no check upon his figures. In any case he was evidently of the opinion that distances were not to be trusted too far, for he gives detailed descriptions of landmarks, and numerous sketches to reinforce the descriptions, so that recognition of the places named may be easy. He says also, more than once, that the surest guide to the position of any place is its latitude and the trend of the coast in its neighbourhood.

The effect of this inaccuracy with regard to distances south of

the equator is obvious in the unadjusted plot of bearings and distances. This places the Cape of Good Hope in latitude $26\frac{1}{2}^{\circ}$ S., eight degrees north of its true position, 144 leagues by Pacheco's reckoning. For this reason the plot by bearings and latitudes has been added, and this gives a very much better result.

Latitudes. Pacheco indicates two methods of finding latitudes: (1) from the altitude of the pole star, and (2) from the height of the sun at noon, taking into account its declination north or south. The instruments at his disposal were the astrolabe and the quadrant.

John II of Portugal had formed a junta of astronomers and mathematicians to investigate problems concerned with the science of navigation. They had addressed themselves particularly to the simplification of nautical instruments, and the determination of latitude south of the equator. They solved the latter problem by applying the method of finding the height of the sun at midday. For this method they prepared tables of declination for the use of sailors. They probably got these tables from the *Almanach perpetuum*, written in Hebrew, between 1473 and 1478 by Abraham Zacuto, and translated by Master Joseph, who also may have produced from it the practical manual *Regimento do Astrolabio e do Quadrante*. This last was printed before the end of the fifteenth century and was still in use in 1537 (Prestage, *Portuguese Pioneers*, p. 318). By the proper use of these instruments and tables sailors would find their *approximate* position as regards the equator.

Yet, in 1500, astronomical observations were the exception rather than the rule, and many of those who made observations were doubtful about their results. Master John, pilot to Cabral in his expedition to Brazil in 1500, writes: "It seems to me almost impossible to take the height of any star at sea for I labour much at it and however little the ship rolls there are mistakes of four or five degrees so that it can only be done on shore. At sea it is better to be guided by the height of the sun than by the stars and it is better to use the astrolabe than the quadrant or any other instrument."

To take an accurate observation, in low latitudes, from the

deck of a small sailing ship, with a comparatively high centre of gravity and therefore prone to pitch and roll, using a hand instrument with no telescopic sights and graduated to degrees only, and sighting on a sun almost vertically overhead, must have been extremely difficult, and to get the latitude correct to within a degree must have been a considerable achievement.

Pacheco's latitudes are therefore, under the circumstances, extraordinarily accurate. He fails, inexplicably, to check his distances by his latitudes and vice versa; he gives what are obviously wrong figures for Arzila, $35^{\circ} 50'$, and for Rio do Larache, five leagues farther south, $36^{\circ} 10'$, both south of Tangier, which he places in latitude $35^{\circ} 15'$; there are inconsistencies in the latitudes given for places along the Guinea coast and one serious discrepancy south of the equator. Apart from these blemishes, however, his figures are very accurate indeed, averaging little more than 40 minutes out, with many of the most important points, such as Cape Verde and the Cape of Good Hope, much nearer than that.

The map, therefore, illustrates the great skill of the Portuguese as navigators and the excellent results obtained. It is a pity that these results were not given earlier to the world, so that progress in Cartography might have equalled progress in navigation and the construction of instruments.

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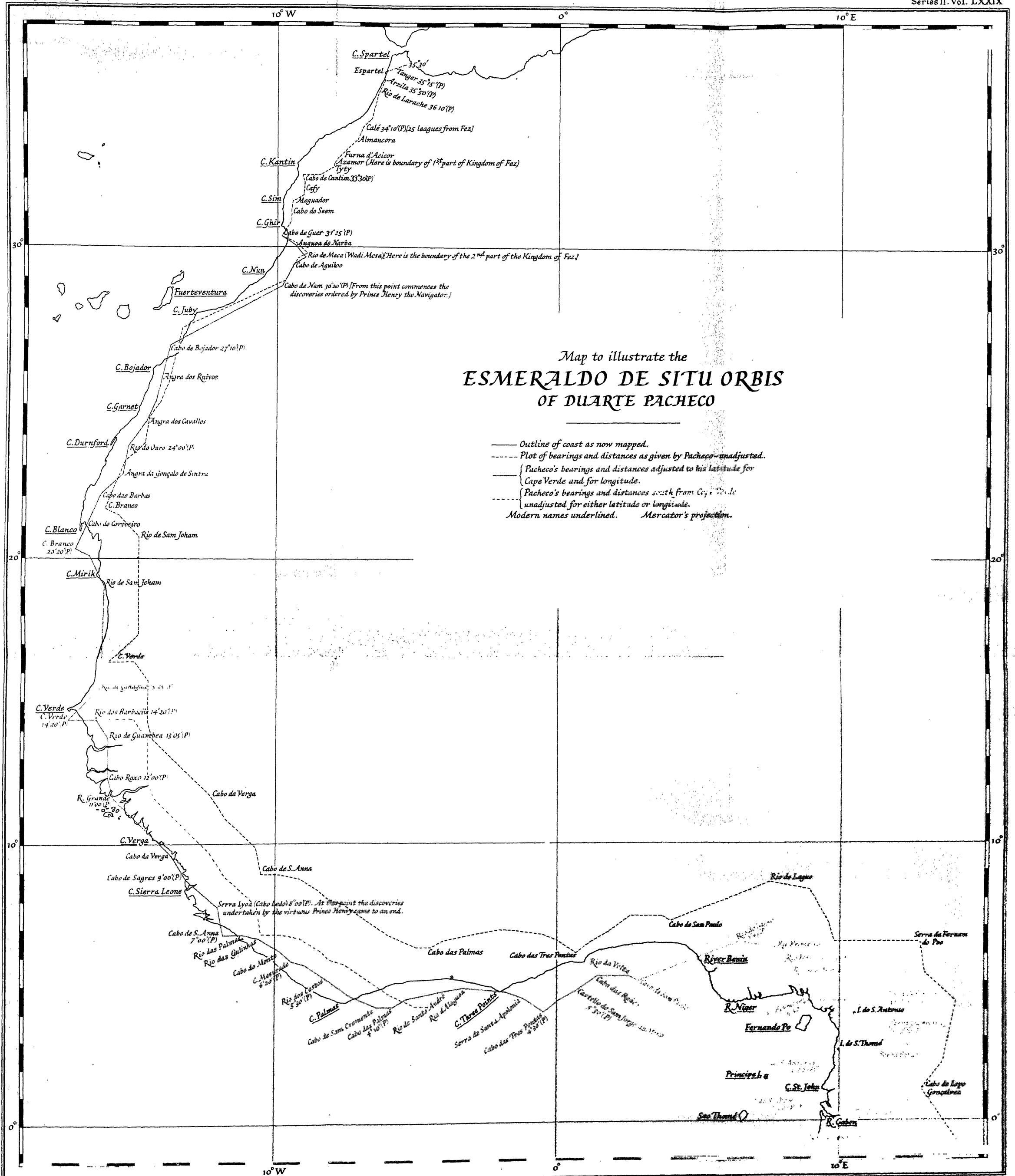
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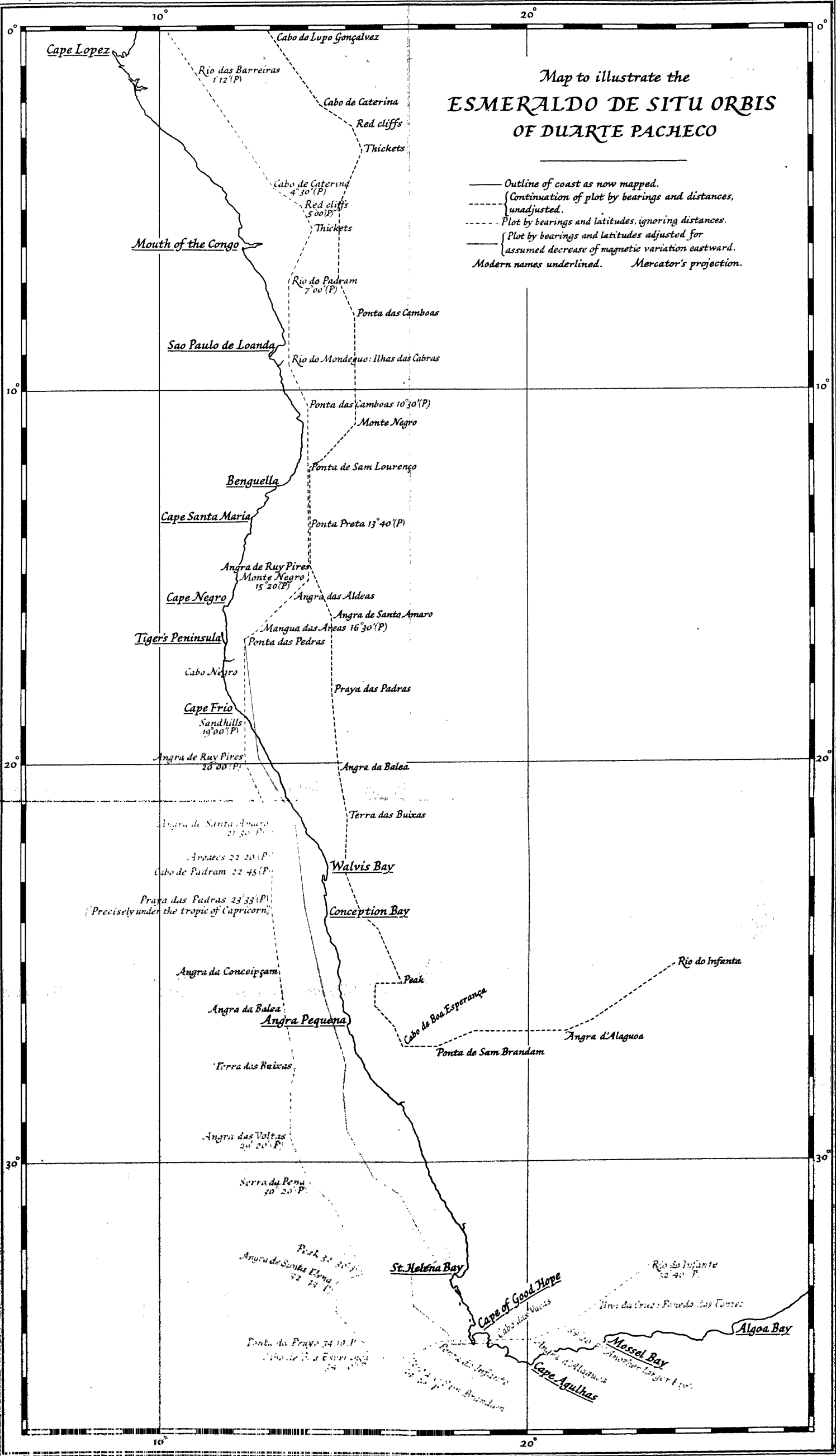
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